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**Legislative Assembly  
of Ontario**  
Second Session, 37<sup>th</sup> Parliament

**Assemblée législative  
de l'Ontario**  
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**Official Report  
of Debates  
(Hansard)**  
Thursday 2 August 2001

**Journal  
des débats  
(Hansard)**  
Jeudi 2 août 2001

**Select committee on  
alternative fuel sources**

**Comité spécial des sources  
de carburants de remplacement**

Organization

Organisation



Chair: Doug Galt  
Clerk: Tonia Grannum

Président : Doug Galt  
Greffière : Tonia Grannum



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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

**SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCES****COMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT**

Thursday 2 August 2001

Jeudi 2 août 2001

*The committee met at 1001 in room 151.***ORGANIZATION**

**The Chair (Mr Doug Galt):** It's a little past 10 o'clock and we have representatives here from all three parties so maybe we should call to order the select committee on alternative fuel sources. This is our first organizational meeting. Thank you very much for coming out and being part of this committee. I apologize for the difficulty we've had in getting a date established for this particular meeting. I know in the summertime there's no date that's going to be apropos for everyone, but it seemed like August 2 was about as good a date as any, so we're now meeting and hopefully that has worked for all three parties to some extent. But I do apologize for the difficulty that some people are having during the summer.

Normally we would strike the subcommittee for administrative purposes at this point, but maybe it would be wise, in view of who is present, to just delay that for a little bit and make that a little later on.

I'd like to make a few opening remarks, if the committee would allow that, and then my thinking is—if you notice, the agenda is almost like a blank sheet of paper with some times on it. That was on purpose because the Chair did not want to be directing the committee but rather guiding it. I thought maybe what we could do was go around the table and allow each committee member a few minutes to express their thoughts and ideas on where this committee may or may not go. I'm sure all of you are as enthused as I am. I just think it's a great opportunity that we have to serve on this particular committee.

Just so you know some of the sequence that we might go through, I might call on Mr Gilchrist first to make a few comments after I finish, and then Mr Bradley, and then we'll just maybe alternate back and forth across the table until everybody has had an opportunity to express their thoughts and ideas as to where this committee should be going.

I kind of see this session as a bit of a brainstorming session to get our feet wet and to get an idea of where we want to go or don't want to go with the committee. It's probably one of the most exciting committees we've had the opportunity to serve on and I certainly look forward to being part of it.

As we look at the mandate that we've been given, it's a pretty broad-based mandate; it's a very wide-open one. The committee may have some ideas of where they want to scope it in certain areas because of the breadth of this particular mandate. They may want to look at ideas of dividing into some subcommittees to look at areas of specialty. I think the number one thing that we really need to accomplish here is to get everyone to a similar base of information, a common base to work from. On that, I've asked our researcher, Jerry Richmond, and also Bob Gardner, who is the director of research, along with Tonia Grannum, to pull together some information to distribute prior to our first meeting to be helpful to get started. I hope that's in order with the committee, since we couldn't meet in early July.

I kind of see this meeting as an opportunity to outline a map or course of action of how you'd like it to progress over the next 10 months or so. There are a lot of things that can happen. We can work from a full committee on everything, or we can have a lot of it drafted out by the administrative subcommittee, or we could have staff draft out a course of action. I'm in your hands as to your ideas and where you want to take it. Certainly the idea that I mentioned a little earlier of breaking out into subgroups of various specializations may be of help. We also need to be discussing briefings from whom, and certainly we have a lot of expertise in various ministries, like MTO and the Ministry of the Environment, as well as the Ministry of Energy, Science and Technology that we can be calling on.

We need to look at meeting times so that the Chair isn't caught trying to find the time when people are available. Hopefully we can set that out, if you'd like to have regular meetings when the House is sitting, and then otherwise, prior to the House sitting, what you would like.

We probably should talk about whether you want a special Web site for this committee that information can be posted on for the benefit of the public.

Then, of course, as mentioned in the motion, we do have the opportunity to employ staff, particularly for investigative purposes.

My number one priority in chairing this committee is that we do the right thing for the good of the people of Ontario. Ontario has often been referred to as the economic engine that drives the economy of Canada. Hopefully, in a non-partisan sort of way, we can be as



non-partisan as we possibly can and work on decisions from a consensus point of view and we can accomplish a lot of that. I do recognize that maybe when we get to report-writing time there will be some partisan positioning taken at that time and that wouldn't be surprising, but hopefully, as the committee works over the next eight or nine months, we can be as objective and as non-partisan as possible.

Maybe we can look now to the appointment of people to the official subcommittee. Do you have a motion from anyone?

**Clerk of the Committee (Ms Tonia Grannum):** I have a motion, yes.

**Mr James J. Bradley (St Catharines):** I move that a subcommittee on committee business be appointed to meet from time to time at the call of the Chair, or at the request of any member thereof, to consider and report to the committee on the business of the committee; that the presence of all members of the subcommittee is necessary to constitute a meeting; and that the subcommittee be composed of the following members: Mr Galt, as Chair; Mr Gilchrist, Mr Parsons, Ms Churley; and that any member may designate a substitute member on the subcommittee who is of the same recognized party.

**The Chair:** Those in favour? Motion carried.

**Mr Rosario Marchese (Trinity-Spadina):** Any debate?

**The Chair:** Would you like to debate it?

*Interjection.*

**The Chair:** I have made a few comments and some thoughts and directions and ideas. As mentioned earlier in my comments, I thought we might go around the table and have different members make some comments as to how they see this committee going. I suggest that maybe we start with Mr Gilchrist and then Mr Bradley, and we'll work back and forth until everybody has had an opportunity. I know you have up to 20 minutes but I don't think that's quite necessary. We look forward to the comments of the committee and some of the directions that you would like to see it going.

**Mr Steve Gilchrist (Scarborough East):** I too am very excited at the potential embodied within the creation of this committee. As someone who has had a keen interest in hydrogen technology since 1986 and has been actively working toward advancing that issue, I see that as one of the potential subject areas that we may very well consider in the upcoming few months.

I think the most daunting task that faces us in this committee is the vast scope of what could be considered alternative technologies. It really will be a challenge for all of us to become expert on a vast range of technologies and different initiatives that have been pursued around the world. In Denmark today, for example, the second-largest industry of any kind is the manufacture and erection of wind turbines. You have other countries that have exploited geothermal, waste incineration. Some countries have already adopted a hydrogen strategy: Japan, Germany, Iceland, to name but three. So to some extent I think the challenge we have is coming to grips with that

range and then applying it within the Ontario context to determine not just the cost-effectiveness but the public capacity and interest in looking beyond Kyoto and the nominal 4% reduction in hydrocarbon-based pollution to something far bolder, far more visionary.

I think we have an opportunity and I would echo your comments about hoping this becomes a non-partisan enterprise, because I don't think any party has a monopoly on wanting clean air and clean water for their own families and for the other people in Ontario. The goal of this committee hopefully will be to review all of the options and put forward a paper that clearly articulates the cost-benefit analyses related to the adoption of any or all of those alternative technologies, and I would submit not just in a test bed somewhere but as formal governmental initiative to move our society away from the current high-pollution sources that are the means of manufacturing our energy today.

**1010**

The world, at least the Canadian world, didn't stop using coal because we ran out of coal. It stopped using coal because a technology came along that became more cost-effective than bundling a truckload of coal and dumping it down a chute for the furnace at homes right here in Toronto. Fuel oil became the next alternative and then, in time, that was replaced. Most homes in this country and in this province are of course now heated either electrically or with natural gas. So the fact that we haven't run out of natural gas or oil should not be the biggest determining factor, I would submit, for the final product of this committee.

I would challenge all of us to look beyond today's costs for gasoline and today's costs for other hydrocarbon-based fuels and to look instead at the bigger picture. I think it's within all of us to do that, and I am pleased that the structure of the committee gave extra weight to the opposition, to not just symbolically but to effectively show that there is a balance on the committee. Hopefully that will support the idea of it having a non-partisan product at the end.

You mentioned the opportunity for the committee to hire staff. I would submit for the committee's consideration that one of the things we might want to do would be to look at getting one or more PhD students who might provide an enthusiasm and a contemporary focus on the subject matter, who would take on specific aspects of any research or other assignment on behalf of the committee.

At the same time, I would agree that a Web site is essential, not just as a means of pulling together information for the committee and for Ontarians in general about the range of the subject but to create an opportunity for people to share input as well. As we move along, and hopefully we'll be preparing draft reports, it would be useful to have some venue for all Ontarians to be able to reflect on their thoughts to whatever we've produced.

Having said that, I think there also will be a need for public hearings. But I would sincerely challenge all of my colleagues that, again, I think we have a lot of research to do before we're in a position to adequately



question those who would come before us at a public hearing and really get the maximum out of their attendance. So I would offer for your consideration that unlike what we do with bills that come before our committees, perhaps having the hearings as the first step might not be as appropriate as undertaking the sort of research that is undoubtedly required to get us all up to speed.

The other substantive suggestion I'd like to make is, given the scope of the technologies that are required, I'd ask for your consideration of whether or not we should create a series of working panels, subcommittees, each one of which would be charged with looking at a specific technology. I really question whether it's possible for all of us around this table to become expert on biomass, geothermal, hydrogen, the newest ways of cleaning coal, alternative hydrocarbons as an interim step, nuclear, battery technology, solar, wind, and on and on.

On the other hand, if the members of this committee already have particular interests—mine, as I've stated, is hydrogen—there might be an opportunity to both accelerate the rate at which we assimilate data by having more than one group looking at technologies generally, and in terms of any out-of-town research that has to be done, it would also be far more cost-effective. I think we could ensure that the panels have the appropriate weighting from both the opposition and the government and the Chair would be a member or an ex officio member of every working panel. I would offer that for your consideration as something that might allow us to assimilate the awesome amount of data before us within the relatively short time period we've been given under the House motion.

I would just sum up my introductory comments by saying again that I'm extremely excited. I think there is an opportunity for this to be one of the most effective committees that has been struck in the last six years and one whose product will be something that is genuinely lauded as being a bold and visionary and non-partisan approach to an extremely important topic facing this province today.

**The Chair:** Thank you very much for some of your thoughtful comments. Mr Bradley, would you like to—

**Mr Bradley:** Mr Parsons will speak first for us.

**The Chair:** Sure.

**Mr Ernie Parsons (Prince Edward-Hastings):** I share, I think, in the excitement of the other committee members, particularly because of my background as a professional engineer. It is just a topic that I appreciate and happen to have an interest in. I also think it's a topic that will affect my children and my grandchildren and my great grandchildren.

Very clearly, heavy reliance on fossil fuels cannot continue, for a number of reasons. I also firmly believe that the issue is not only economic, but also we're dealing with health and dealing with environment with it. But I also appreciate as an engineer that if you want to truly understand something, try to change it. I think that this committee will appreciate that as we start to look at what the alternatives are.

There are a substantial number of very exciting alternatives that exist to the traditional fossil fuel, all of which have some very strong redeeming features that make them very attractive, while I can assure you that every one of them also has some detracting features that present problems of their own. Our challenge will be not to go with the glitz and overlook when we're confronted with the downside of each and every one of these alternatives.

There is a tremendous wealth of information available. I have been literally inundated with groups and individuals when they became aware of this committee, wanting to share information with me. It enjoys strong support, I think, across every facet of our society that wants to be involved. So I would strongly encourage and advocate for an opportunity for a cross-section of these groups to present to us so that we can gather some information from them.

I also believe there will not be a magic solution. There is not an alternate fuel or fuel X out there waiting for us to implement, and then all of our problems will be solved. As I said, life is a compromise. I believe the energy usages for us in the future will be a compromise: a balance between the pluses and minuses for each fuel. We will continue to have to use a mix of fuels. The challenge for us will be to make recommendations that come up with the optimum mix, the one that has more pluses than minuses, to recognize the range that we will ultimately continue to use. For that reason, I personally would advocate for us to remain together as a group so that we become familiar with all of the options that are available, so that we are better positioned to suggest a compromise solution on the fuel mix. That concludes my remarks.

**The Chair:** We move to Mr Marchese.

**Mr Marchese:** I thought it was going to go back to you again, Steve. Not that the NDP counts, as you know; it's just a little party.

Mr Chair, just to tell you that Marilyn Churley is the member of this committee and she wanted to express her disappointment, because she wanted to be here and she was hoping it could have been on August 14 or 15, when she was available. She did indicate that she had said that she had sent that date in. That obviously didn't work out that way. So I wanted to express her disappointment as the environmental critic who would have liked to have been part of these discussions.

I would suggest, just to begin with, that we change the title and call it alternative fuels/energy sources, because as the researcher, Mr Richmond, and others indicated, they are two different things. "Fuels" just indicates one form of energy and "alternative energy" speaks to other forms. So we should just agree to change the title. The people who are following this discussion will say, "Why limit it just to fuels?" I think we should consider that before we move on in our activities.

**1020**

The third thing is that, just to agree with you, Steve, and the Chair, the point is to try to make this committee as non-partisan as possible. I think for the most part we



can and ought to try to do that because, as Mr Parsons said, this issue affects all of human life; it's not partisan. Environment is not selective as to whom it will damage. You can't protect yourself with money. When there's environmental degradation, it affects everyone generally, irrespective of class. We all have an interest in protecting our environment for the present and for the future, so my hope is that we would all do our best to be non-partisan, because we all have a stake in it.

In that regard, there ought not to be a division between economic considerations and environmental considerations. We should all be saying we need to look at this in a way that brings environment and economy together, because we all have a stake in it. We can't say, "We'll disregard the environment because we've got to keep jobs." We won't have jobs if the environment degrades to the point where people become ill and sick and die of it. So I think that's the kind of philosophy that should drive us in terms of looking at alternative fuels and energy sources for future lives.

I wanted to disagree with you, Steve, in terms of the hearings. My suggestion would be that we start with the hearings and then do other types of work that we want to do subsequently. My suggestion would be that we have a day here in Toronto, a day in the east, west and north, and do that as quickly as we can: hear from the various people who have an interest in this issue and get advice from them as to what they think we should be looking at and studying, rather than doing that at the end, because at the end we've almost decided what we want to do, based on our research and our own best thinking around these issues, of course, getting the best advice, naturally. But by that time we will have made up our minds on what we want to do, and it makes it more difficult to change our minds afterwards. So I suggest we hear them first as a way of shaping what we want to do, rather than the reverse. I would be interested in hearing what people have to say to that.

We might want to leave whether or not we divide into subcommittees until later, although I don't mind the idea of dividing into subcommittees if that's the direction we get. If that's what we feel we need to do as we go, I don't find any particular objection to it, although I am leaning toward the idea that the committee should try to stay together as we listen and as we study the issues, that rather than individually, the group acquire a greater knowledge on a particular issue. It would be good for all of us to have the same knowledge around them. That would be my immediate sense of where I would want to go, but I'm not tied to one or the other. But it's possible that, in hearing people, we may get a better sense of what we want, and that might give us a sense of direction.

So I really recommend that we do that in the earlier period, not to prolong it or delay it forever, but one day might do it here in Toronto; one day might do it in the east, west and north. That would give us plenty of advice, and people would feel good to know that all three political parties are engaged together in trying to find solutions as we consult people around the province.

These would be my brief remarks.

**The Chair:** Maybe I can just make a couple of responsive comments and then move over to the government side.

In connection with a change of title, that was a motion of the Legislature, and my understanding is that changing the title can only be done by the Legislature.

**Mr Marchese:** We can recommend that.

**The Chair:** If the committee so wishes. I think there's also a letter from Mr Ouellette suggesting a change in name. I'm not sure if it's consistent with your suggestion or not; I'd have to double-check that. But he was suggesting that as well.

In connection with hearings, the message I'm getting is kind of two-sided. One is later; one is earlier. Maybe, looking at when the House sits, we'll be guided by that to some extent. We don't want to be on the road when the House is sitting, so maybe the committee wants to have a look, and I certainly hear different information there.

As to preferring to stay together, maybe as we work down the road we'll have different ideas on how we want to handle that kind of thing. I appreciate your comments: well taken.

Mr O'Toole, would you like to make a few comments?

**Mr John O'Toole (Durham):** Thank you very much. First of all, I just want to say that for me personally it's an honour to represent my constituents on a very important policy matter.

To start with, I think in a completely non-partisan way it is an important issue because it touches on the word "environment." I live in a part of Ontario where, whether it's the Oak Ridges moraine or agricultural practices—and indeed, it's the home of the Darlington nuclear plant. It's a topic that's been around for as long as the nuclear debate's been around. So I think it's important to represent my constituents and stay close to the issue.

I suspect, if there are any qualifications—unlike Mr Parsons, I'm not an engineer, but I have worked in a technical environment almost all of my 30-plus years in the private sector. Working for General Motors, you might say I was always—they are large consumers of power in a manufacturing sense, but also in the products they produce, whether it's in diesel engines or whether it's in aircraft, and certainly the automobile. I've been instrumental, since being elected, in trying to encourage General Motors and the auto sector to look at alternative fuels like power fuel cells as well as electric vehicles. In fact, I've written to the minister and tried to set up relationships between OPG and General Motors and the automobile manufacturers alliance groups, as has been done in Quebec, as has been done in BC, supporting Ballard Power. There are other kinds of cogeneration applications occurring as we speak. Toyota and Ford have both introduced electric vehicles, as has General Motors.

In a general sense, going back to the name "alternative fuel" committee, I do support what Mr Marchese and Mr Ouellette have said, also in writing, that we as a group

state from the beginning that we're really looking at an energy committee. I think we can do that by a preamble statement that says we want to look at it holistically in terms of application of the use of fuels and alternatives.

But I think the main thing is the word "environment," whatever choices, and I agree with what you've said. The production of energy creates waste or by-products, and so it's a matter, as Mr Parsons said, of balancing the pros and cons while maintaining and respecting the importance of having a strong economy, which sounds sort of like an ideological position, but I don't think it is. I'm firmly convinced that having a strong economy is instrumental.

The whole Kyoto debate is about who gets the credits. It's about who has the ability—why do they exempt India? Why do they exempt China? Why do they exempt countries that are going to use energy as their advantage, and the emitting of pollutants, potentially, to advantage them in the economic debate?

I do want to say that I was very privileged to have served on the select committee on Ontario Hydro nuclear affairs with Dr Galt, as well as Mr Conway and Mr Kwinter and others who had a lot to offer to the debate. I found the non-partisan nature of great value in working through many of the things that we should be looking at. There are a lot of options. It's not just a simple case of biomass or electric or fuel cells.

Something that affects me directly is wind power. Not only is the Bruce application with OPG and their partners moving forward, but also I have in my riding a very controversial wind application on a farm operation. In the States that's the growing development: wind application on farms, cogeneration—a huge application. In the Midwest it's a big deal, a huge issue with noise and other kinds of things, but I'm very much drawn to that aspect of it.

Again, most importantly, I must think of my riding. The huge mega-project that's potentially coming to Canada is ITER, the international thermal experimental reactor. That project is second only to the space station in terms of project dollars. It's reported to be multi-billions. Canada has just recently signed on, and there will be a bid decided for the ITER project, which isn't an immediate solution but I think will be sometime within the next six months. It's very controversial in my riding. It's widely supported by Ontario, to the tune of \$300 million. We should know that. Again, it's an experimental application of the use of solar energy.

1030

I'd like to summarize by saying I like the non-partisan aspect. I agree strategically with the approach Mr Marchese brings forward, and that is to hear from people like ourselves, who bring with them many understandings of where we are, before we leap to conclusions and consult with experts and definitively draw some conclusions, and then listen to the public, who are theoretically and technically not as well exposed to those options. I think you're right: let's hear from the people. Our mandate is to move forward at what speed and what

option and then sit down in a substructure to look at the various options, whether it's solar or whatever.

Right from the beginning, I hear a lot of consensus. I think there is a real willingness to try and find alternatives that we as Ontarians and people living in the world face. We have large pressures, whether it's Kyoto or whatever, in trying to force the government—whoever the government is, whether it's provincial or national—to really bring forward a strategic position that may help our children in the future.

It's a great opportunity, and I look forward to participating and being well educated at the end of the process.

**The Chair:** Thank you very much, Mr O'Toole, for your comments. They were much appreciated. The one in particular that seems to be working out here in the discussion is that of meeting with delegations.

**Mr Bradley:** The idea of looking at both alternative forms of fuel and alternative forms of energy is good. I don't even know if we have to change the name of the committee to do it because I think this committee can, through consensus, employ as much flexibility as possible. In my mind, I anticipated when we said "alternative fuels," and it may not necessarily have been in other members' minds, that we would also be looking at other forms of energy, and indeed at the virtues of conservation of energy and the conservation of fuel, which of course can make a major difference. I've talked to many people in industry who have been surprised, perhaps, themselves even, but delighted that their costs were diminished considerably through energy conservation measures that were probably prompted, as most of our action is in this field, by price, particularly a number of years ago when we had boycotts of oil and significant increases in the cost of fossil fuels.

So I think the maximum flexibility for the committee is useful and I certainly do not express an objection to looking at alternative forms of energy, because there are a lot out there that we are familiar with, but we may not be familiar with the details of them, and there are some perhaps that we have not been exposed to yet.

It's going to be essential—and this almost goes without saying—that we have a careful analysis of each of the options, because there is a lot of excitement. We watch television, we read newspapers, we get publications that come over our desks, and we become somewhat excited by a new development that is portrayed as the best development we've seen in years, only to be disappointed sometimes a few months down the line when we look at it with a more careful analysis. I think the advantage our committee will have is that we will be looking at these very carefully: looking at the analysis, looking at the cost benefits, looking at the environmental benefits. There are some alternatives, for instance, to fossil fuels, which have real problems for us, but there are some alternatives that are advanced that aren't necessarily better in balance than fossil fuels. Our committee has the advantage, I think, with staff, with people who make representations to the committee and with the expertise among the members, that we're not going to easily embrace one without



looking at that careful analysis of the alternatives to what exists at the present time.

I don't think we'll be reinventing the wheel. Others around the world have done what we are doing. But we will have the advantage, as members of this committee—through the report of the committee, the research papers that are provided, the testimony that is given and what we have gleaned from our experience on the committee—that we will be able to share with members of the Legislature on a bit more of an expert basis the alternative fuels and forms of energy that are out there and their pluses and minuses, because I have seen that too often.

What we have to be cautious about—and this is natural if this is going to happen—is that we simply don't become a committee which is a repository for magic boxes. We've all had those provided to us as members of the Legislature, the magic box which will solve all problems. While we want to listen, we have to remember that our committee may be deluged with these magic boxes, which may not merit further consideration. I think some of us may already have received some communications from people who have the latest invention that will save the world—and maybe it will; we can't entirely close our minds to it—but I think logistically speaking that's one of the things we have to look at, because we will all have limitations on our time as a committee, and each of the members here has responsibilities other than being a member of the Legislature, which is important in itself, our constituency responsibilities and so on.

I think we will want to hear—this goes without saying as well, and others have alluded to this—from people with a good degree of expertise in these areas and some balance and objectivity when we hear from them. That's going to be difficult in some cases, because some of us have a bias ourselves toward one form of energy or another and some are enthusiastic about one form or another, but ultimately when we do the final analysis we'll have to have that objectivity.

It may well be that someone from one side is presenting and someone from the other side is presenting. I had a chance a number of years ago to be in Washington in my capacity as Minister of the Environment, listening to people who had some alternatives to what was existing. They sounded very good and you were quickly wanting to embrace them, only to listen to the other side which told you, "To produce this form of energy or this form of fuel, here are the consequences as well." There's a balance ultimately that you're going to choose on that.

I like the idea of the select committee as preferable to the standing committee because it does allow us to focus. You've had some experience, Mr Chair—Mr O'Toole has mentioned it—in dealing with Hydro affairs. I sat on a committee in 1979 that dealt with Hydro affairs and the boilers at Pickering and some problems that were encountered on that occasion. It's a very good committee to have and a very select focus on that particular issue.

I think this committee has a lot of potential. My personal preference is that all members of the committee be exposed to each of the areas. I see some virtue in

specialization or subcommittees, but ultimately my preference, if I had to come down on one side or another, would probably be on the whole committee being exposed. That doesn't mean the whole committee is traveling to one place—that isn't always necessary, of course—but I think as much as possible involving the whole committee is very useful so that the report we finally produce is going to be genuinely a consensus and one based on knowledge, not simply on whether I think Ernie Parsons is right on something he advises me, or Steve Gilchrist or Marilyn Churley may be right in a specific area, but rather a chance for all of us to look at it.

One thing you mentioned, Mr Chairman, which I think will be helpful is I hear flexibility but I also hear focus. But I hear flexibility so that we're not confined as much. We have some expertise in the legislative library operation that is going to be very helpful to us. Perhaps as staff, Mr Gilchrist has mentioned the possibility of a couple of PhD students who are experts in a field, who are doing specific study and analysis. That may be useful to the committee as well.

I look forward to what we are doing with a great degree of enthusiasm and hope we are able to come up with something that others have not been able to come up with, or that we're able to analyze what others have come up with and determine whether it suits Ontario, as opposed to other jurisdictions.

1040

**The Chair:** OK. Thank you very much, Mr Bradley. If I can just draw your attention, there seems to be a concern over the name. I guess in my mind "fuels" and "energy" are pretty close together. But just going to the motion, it states, "recommend ways of supporting the development and application of environmentally friendly, sustainable alternatives to our existing fossil fuel sources." I think, from the statement in the original motion, it's very open.

The other sentence I just wanted to share with you is from Mr Richmond and I think it's rather apropos. It's on page 2: "In fact, there appears to be some overlap and confusion in the usage of the terms 'alternate fuels' and 'energy' and 'renewable energy.'"

Just with those thoughts in mind, as you're wrestling with whether you are comfortable with the name of this committee or not, I thought I would share that with you.

Ms Mushinski or Mr Hastings, which one would like to go next?

**Mr Marchese:** You don't have to, of course. Mr Chair, you don't have to—

**The Chair:** No, I'm just offering.

**Ms Marilyn Mushinski (Scarborough Centre):** No, I'll speak. Given that I've just been given a challenge to speak, I intend to speak.

That was going to be one of my questions, Mr Chairman, in that the terms of reference under the votes and proceedings report states quite clearly that "a select committee on alternative fuel sources be appointed to investigate, report" etc.

I am wondering, looking at Mr Ouellette's submission, if there would be any protocol requirements to actually change the name of the committee, or whether this committee is well within its rights to change it to "energy" or "fuel and energy," if it wishes.

**The Chair:** My understanding is that's not something the committee can change. It has been passed by motion in the Legislature, and to have it changed we'd have to request that the Legislature make that change. That is my understanding.

**Ms Mushinski:** OK, good. Then I would just briefly draw your attention to Mr Ouellette's submission of July 20. His apologies, of course, are extended to this committee for his inability to be here today and that's why I am sitting in for him. I would just certainly draw your attention to his submission and, as a substitute member, say I'm very encouraged by what I've heard this morning. Clearly, there seems to be a lot of commitment and dedication from all of the members of this committee to fulfill the mandate of the terms of reference of the select committee.

I would encourage the committee to think outside of the box. Politics does have a way sometimes of interfering with one's ability to think outside of the box.

I had a lot of experience at that at Metro council. When we were looking at alternatives to the Beare landfill, we actually did take a trip to Indianapolis to look at their energy reclamation alternative incineration of garbage. Clearly, there are all kinds of examples of alternative ways of treating our garbage in other parts of the world.

In fact, I'm very encouraged by the information that Mr Richmond sent out. It's interesting that Denmark seems to be on the leading edge of a lot of alternative fuel mechanisms. It's also interesting to see that they have a high overall recycling target and yet 78% of their household waste stream was incinerated in 1999.

So I would encourage this committee to look at the advantages as well as the disadvantages, and weed out some of the political challenges we faced as we were looking at these alternatives a few years ago. Hopefully, those biases won't drive this committee to reject other sources of energy because of those political arguments.

I think it is important that we do clearly set a business plan approach for this committee. I think it's important that you look at benchmarks. I think it's important that you look at performance measures and make sure that results are measurable, comparable and accountable to the taxpayers because at the end of the day, no matter what this committee chooses, it is the taxpayer that's going to have to pay the freight.

**The Chair:** Thank you very much for your thoughtful comments.

**Mr John Hastings (Etobicoke North):** As Mr Durham East says, it is a privilege to serve on this committee; I know the riding name has changed, but Mr O'Toole mentioned the importance that this committee can play. My expectation would be that it hopefully won't be just another committee that will produce a

report and there will be little in terms of actual results which you could go back and trace from whatever findings we come up with on whatever type of alternative energy, fuel or renewable sources of energy we look at.

I'd like a bill to say in a few years, if I'm still on this earth, that there is at least one thing this committee could point back to and say we worked to get the issue resolved and to get it in action. I don't want to see a committee which works on studying stuff and then we don't end up producing specific outcomes. This ought to be an outcome-focused committee, not just a going-through-the-exercises committee. If that's too high an expectation, then maybe my expectations of politics are still too high.

In terms of how we actually operate, I think one of the ways the subcommittee could look at how we conduct ourselves as an enterprise would be, if you're going to have hearings, to focus on a specific theme for a given week. For example, Mr Gilchrist has a great interest in hydrogen. I would think that we could have a whole week or a number of days, maybe two weeks or whatever, where the committee looks at hydrogen—period; or fuel cells and how that little part would fit into the overall functioning of the committee, what kind of recommended outcomes could we see if we utilized some of that energy in demonstration projects, if that were one of the things. That would be actually one of the things I would like to see us do, to actually see some of this stuff so when we report back, we have not just the traditional verbal text of a report, but some actual evidence on videotape or video conferencing or however it's produced. I know most of it will be in text form, but when you're dealing with science and technology and you don't have an extensive background in same, I think it's most helpful in persuading people of your case—whatever it is for whatever energy source—if you can actually show them diagrams.

I think the picture format is very effective, which gets me to the Web site. I think we ought to have a Web site, that is essential, but not just a Web site that looks like a brochure. If this is going to be a brochure, then I can pick up a booklet and look at that. It ought to be an active operation, so it needs sufficient maintenance. It ought to have several links to other sources.

*Interjection.*

**1050**

**Mr Hastings:** Yes, ministries across Canada, the US, Europe and municipal. For example, we should probably have a link to the Canadian Energy Research Institute. If we're looking at hydrogen, there should be a link to the California fuel partnerships or the BC hydrogen stuff.

As a former Hydro commissioner in Etobicoke, which helped start my career in politics, I found that under the old monopolistic system where we had just Ontario Hydro, we were severely inefficient. There were a lot of opportunities in the mid-1980s that we missed. We did a little bit. OH started to flex its thinking muscles, finally, to look at how you could use cogeneration, how you could use district heating. To me, this committee is sufficiently flexible on how you interpret what Mr



Richmond has put in his initial submission here, along with Bob. We ought to look at the existing carbon-based or electricity or how these things work in combination. The district heating concept to me is one of the things we ought to be looking at in terms of efficiency of electricity generation and transmission, the ultimate payouts. I recently had an opportunity to visit a company in London, Ontario, called Trigen, which is very much into district heating. It's not just a concept; it's a functioning reality. They are a very small producer but they are efficient, and that's what we need to be looking at, the demand side of this situation.

I don't see any conflict, really—I know lots of people probably want to manufacture one—between the energy sector, the economy and the environment. To me, they are all one. In fact, if we are a smart committee thinking outside the box, as Ms Mushinski has mentioned, in my estimation we ought to be looking at these alternative approaches to the use of energy from an environmental viewpoint, but not just saving the environment, which is great and should be a priority here because we need to practise at home what is probably not being utilized abroad—which leads me to another two issues I think the committee ought to take a look at.

One is, how would our recommendations, how would our approach on these alternative uses of fuels and the combination of existing gas, water cooling, district heating, geothermal, wind—the latter two are ones I'm most interested in. But trying to take a broader holistic picture, I think we ought to be looking at the huge potential that is available to us already in Ontario if you look at the number of companies and associations that we could be showcasing for economic development. This to me is a committee which I know is looking at alternative fuels, but I'm looking at how we can translate those alternative fuels which will improve and enhance environmental quality and simultaneously create jobs.

Is there a phraseology in the mandate of the committee to be looking at that? We have a lot of innovative environmental companies here in Ontario, from hydrogen through to geothermal to solar. I'm not just thinking of solar panels on the side of your house or how solar is applied by the universities in the car races across North America, but at very simple things that can be done to improve energy efficiency in the heating of buildings. I have a couple of ideas there.

I think we should be looking at this from a job creation viewpoint, if possible, and how our excellent technologies in many of these areas can be helpful to export development. In other words, this is where you help to save the environment over time but you also combine that with how you enhance the number of jobs and what is required in that area, which might be educational initiatives or skills development. Because if we're the committee of the future, you have to think about those things down the line in planning for them, hopefully.

Essentially, I hope this committee will be a major mover and a group that can make a major paradigm shift

in the ways in which we can produce outcomes and recommendations, and in ways of people looking at stuff in a different way. There is the whole area of ethanol, and we have companies in Ontario, which gets us into the biomass and the bio-diesel stuff. That area has a big impact on agriculture, I think. So how we approach this has linkages to other things, not only in the environment and the energy sector but in the economy as a whole.

I would hope that we would open our minds and look at what other countries and states are doing, because we're in a competition here. The race is on and things are being done. Speaking to a couple of companies recently, I found that they're saying, "We're in Ontario, but there doesn't seem to be a lot of encouragement from the broader public, from government, etc." There are folks out there who would like to move these companies to other places in the world and that's where we miss the whole job creation potential in terms of saving and enhancing environmental quality.

Finally, if this is a committee that really wants to function well, I think we need to look at the R&D gaps, what may be missing and how that needs to be financed. I would hope we would look at the financial side—if you take biomass as an example, but it can be any alternative form—of how we can translate that into a practical, demonstrable thing in reality and get these things up and going, more so than just the traditional grants that governments have provided in the past to groups, which then fade out. If you look at the report of the Ontario hydrogen institute, it was a grand initiative. Why did it fail? It says in here that it lacked political will. It probably had other things that it was lacking—financing. That's where I would like to see us invite in, at some point, the people from the Investment Dealers Association. How do you finance this stuff and which things have the greatest potential to get up there and actually have an impact on producing energy at an effective, reasonable cost, whether it's Mr Ouellette's small power producers or the district heating concept or biomass? How do we translate that practically?

Those are some of the things I would hope we would look at over time; that we'll not only do the hearings, we'll actually look at demonstrations where they're available, wherever they are. Hopefully, we'll end up with an effective report that has produced some results, or a result, and something we can point back at and say, "We did that," and whatever that is will have some impact on the environment and on our economy.

#### 1100

**The Chair:** It's certainly been interesting hearing the comments around the table. There are a lot of similarities. I would certainly reflect the comments made by many that it is a privilege to serve on this committee. It's really exciting to be able to serve and to represent my constituents, as well as the constituency of the whole province. Congratulations to all the members for some of the thoughts they've put into this prior to coming to this meeting and the ideas and directions you want to see it go in.



I would like to call on our researchers a little later for some comments about what they can do for us, some of the things they've put before us and some of their thoughts on putting them before us at this time. But maybe before we go there, I'm looking for direction, next steps. Do you want to direct your subcommittee to draft ideas of public hearings or getting information meetings or whatever? I'm at your mercy, so to speak, as to what you would like to be the next steps to get going. It is August 2. We have slightly less than 10 months, short two days, to our final report. There hasn't been too much mentioned about an interim report, but I wouldn't be surprised if we would like to have an interim report on some of the information we've found by January, or some time such as that, and then a more detailed report come May. But I am looking right now for next steps and am looking to you people for direction.

**Mr Gilchrist:** I certainly agree. I think, given the relatively short time frame, it is critical that the subcommittee meet with all due haste to consider the various options before us.

I just wanted to make one thing clear, to Mr Marchese in particular: I don't disagree for one second about the issue of the hearings. I guess what I was suggesting is not doing it at the end but more at the middle. I want to make sure that when we have public hearings—and maybe what we need are two rounds of public hearings, if I can take from your comments that you want to have as the first input some definition offered from the public of what their interest is.

My only concern is that before we go out there, it would be useful to know what the range of options is so we know that nothing has slipped between the cracks and that some group out there which may truly believe, notwithstanding what everyone around this table thinks they know about the terrain in Ontario, that there really is an option for geothermal, for example. The standard newspaper advertisements we put out to prompt people's attendance may or may not reach all people in the province. It struck me that if the researchers could come up with a range of options, we might actually go and search out the groups who could come forward and bring their expertise at the outset.

So I don't disagree, if you're prepared to some extent to suffer the chances, with whatever steps the researchers and the clerk's office can do to go through their files and make sure anyone who has commented on energy issues in the past gets a direct invitation. I'm comfortable with that. But what I would like to offer to you and the other committee members is, having sought that initial input from the public, we then go out—we've done our research, we've pulled together all of that research, as Mr Bradley has pointed out, as have previous select committees, all the information that is sitting out there. As we draft even our interim report, I think we would want to test that in the public arena again. So I would agree with you, Chair, that there is a need for an interim report but I would submit to you, after we first cobble that together, that's when we really need public input on whether the

direction it looks like the research will point us in is in the right one from the public's perspective.

To come back to your original question, I'd like to see the subcommittee meet—I don't know when Ms Churley is returning—literally on the day that all four of us are first available, and challenge the subcommittee to put together an aggressive time frame to hold those initial hearings and then allow the researchers and the committee members to get out there and start tackling this project. I'm just concerned that come September 24 when the House returns, all of us will be diverted by the other day-to-day activities in the Legislature and it will become doubly difficult to give the sort of attention to this issue that it deserves.

**The Chair:** Mr Marchese, I think you wanted to comment.

**Mr Marchese:** First of all, Marilyn Churley is available on August 15, so I wanted to tell you that.

The second point about the hearings is that the hearings ought to happen in September and can happen in September, assuming members are available. That would be probably prior to the House coming back. So what we would be accomplishing is hearing from the public.

My point about the hearing is to say to Ontarians—not just the experts—"We want to hear from you." Some experts could come, but what you want is the general public to be able to say, "Thanks for inviting me." It could be experts and people who have a stake or an interest or an inclination toward one form of fuel or energy alternative. It could be anything, and that's the point.

We could, with the help of the researcher, put together the various options that you were talking about—these are the various options that are there—and prepare some possible questions that we want people to respond to as a way of helping to possibly shape or frame the discussion or the focus. We could do that, and the subcommittee could agree to that so that research could come up with some suggestions about, "Here is the range of options you were talking about, here are the kinds of questions we would want people to respond to," the subcommittee approves it and we're off and running.

We could announce this as quickly as we want for September hearings, and I think we could get that out of the way. I wanted to point out, by the way, the Web site—we would need somebody, obviously, to supervise that, and I'm not sure if the researchers can or have the time to be able to do that. That's where Steve's suggestions about some PhD-type or types might come in useful, because if you have the Web site, you're going to have thousands of people offering suggestions. That's going to take a whole lot of time from an individual, or possibly even two, to deal with in terms of getting information and synthesizing it in some form that's useful to the committee. I wanted to make that point about the Web site.

Those are my suggestions about the hearings.

They could, Steve—I wanted to point out, in the beginning you could have them in the middle or at the end. So you could have the hearings in the beginning to get

the feedback. We would do our work based on that in terms of the direction we get and then come back to the public at the end with our suggestions, so beginning and end in that synchronized—

**The Chair:** OK. Thank you very much. There's one thing I'm not hearing as we talk about the public hearings, and that's getting briefings from some of the ministry people that we have. There are three ministries in particular I would think might want to well understand what we're already doing as a provincial government as we head out. So I would think we should be looking at one or two days, or maybe one day, where we hear from the Ministry of Energy, Science and Technology, the Ministry of the Environment and the Ministry of Transportation. I think they have different departments, different branches. We need to know what we're doing, what's there, in some detail, not super detail, before we head out. Just a thought from the Chair.

Mr O'Toole and then Mr Hastings.

**Mr O'Toole:** I'm just responding to the contribution to the next step suggestion. I want to start by saying we've been given a fair amount, on our own, of opportunity to look at Web sites, and Steve Gilchrist has done a fairly significant job already of just jumping on it. I'm sure some of us have as well.

Just looking at the background material that's been provided by Mr Richmond and Mr Gardner, that's something I want to certainly spend some time on.

Saying that, Steve mentioned in his opening remarks having some connection with the academic institutions. I think it's absolutely critical. They're the people who are supposed to be charged with looking at the latest methodology and technology. And as Mr Hastings said as well, I think the Web site is critical. If we want public connectivity all the way through this process, we can be commenting as a committee, we can be commenting and receiving comments and, as well, every day or every week or every so often, we would be putting forward our plan and looking for feedback on the next steps.

So I'm saying the steps—what I see is having the staff currently—which they are doing—as well as connecting up with some of the reference material here from the federal level of government and some of the obvious contacts there, as well as our own energy, science and technology committee. If I want to wrap around that what resources we have already, I would only add the academic people we should be talking to, finding a graduate student who's doing work and linking that up with the energy, science and technology funding. They are already providing, either federally or provincially, funding, either grants, directly or indirectly, or recognition money under—what are some of those grants called? Anyway, they're under Minister Wilson's ministry. That could probably fund the work that could be done and they could be maintaining the Web site, part of it, at least putting out papers or reference materials on that site. So we have our existing research staff; we could take on a couple of graduate students who would be working under some PhD person, either at Waterloo—one of the high-

tech schools. Queen's has a very high electrical engineering thing. So I'm sure we could get one.

**1110**

At that point in time I kind of want to go back and make sure we individually represent people, normal, everyday people, some of our constituents. As Ernie knows, I've had one biomass project and a wind project brought to my attention and it's important that I at some time would like to evaluate that in a more informed way and bring it to the committee. Perhaps they could appear before the committee. But I'd like to hear from the general, average people, not some lobbyist group on power, and it may be appropriate to be here or London or perhaps Kingston, and hear from Joe Average or Joe like you and me.

At that point in time, with the specialists that we have, it would be a good time to take a reading and say, "OK, the subcommittee shall look at fuel cells," and then actually engage a specific expert in that field, and two or three members of this committee and others might look at biomass and the impact on corn and markets for ethanol etc. We might want to be part of that committee and may want to look at expert testimony as well as potentially visiting a corn operation or an ethanol plant, even here in Ontario. Then at the next point we would probably have an interim report, and then it would be good to look at next steps of how we decide on an action plan, as opposed to just a report.

That's my comment: let's use the resources we have. We may want to engage a couple of additional fresh, young, enthusiastic people who are doing graduate studies in technology and energy, and harness that in relationship with the ongoing government activity, but not lose track of the general public too quickly. We'll be talking up here and they'll be listening down here. So I'd like to keep them engaged and use that Web site. I think it's an excellent idea, John, to put forward what we're hearing, talking points that we would like their feedback on, and refine it. It's sort of like a funnelling process. We're starting here; let's not get there too quickly. I would think by the fifth month we would be well on the way toward a draft report, focusing it down to some real options for the future.

Keep in mind, for me—this may not even be appropriate to say—the market opens in May 2002. What relevance is that? Well, basically under Bill 35 there is a requirement for OPG to divest themselves of 80% of generation, down to about 35%, I think. So there are going to be coming forward all kinds of generation options. Really, fuel is how you generate power. I don't care if you're using corn, water or nuclear; this whole equation that we're looking at is going to give governments in a policy sense—how do we deal with the Nanticoke plant, how do we deal with the eventual phasing out of coal or coal as we know it options?

I think there's some real linkage with that timeline of May. I'd like to say five months from now. So it gives us August, September, October, November. By the end of December or in December we would report an interim



report from this committee and we would then take our next steps of what we do over the winter period.

**The Chair:** We may want to look at something like an interim report as a status report—this is what's happening in Ontario, this is what's happening worldwide—and then our final report more along a recommendation line, possibly.

**Mr O'Toole:** Oh, yes, a final report would be far more progressive. It would be—

**The Chair:** Direction.

**Mr O'Toole:** —the policy directions.

**The Chair:** Mr Hastings.

**Mr Hastings:** First off, I think this committee needs to be seized with a sense of urgency, not leisure. That requires, then, that the subcommittee, in the development of its planning, ought to set out—it will take probably a month, but there ought to be set out sufficiently, almost weekly, what the committee intends to do. Whether it gets to doing some of that will be interesting to map, but I think we ought to be seized with some urgency.

With respect to briefings, my preference would be that it ought to be all the ministries that are involved. We ought to get a synthesized, very holistic briefing, not departmental. That would require, then, that they all be in the same room most of the day or whatever time this takes, because they'll get briefed too. We need to get out of the silo approach to briefings, and it'll help them.

With respect to the Web site, I think that is a very key element here, because you're going to get hundreds of people wanting to make a submission, and they're not all going to be handled. So we've got to get people who do want to make a submission to look at doing it on the Web site, however that is structured, and that's going to require significant dollars and resources, in my estimation, if you're going to make it effective. We need to approach the chief information or technology office for assistance in that area.

I think also it's a great opportunity for this committee to practise what we do not necessarily always preach, and that is, we ought to engage co-op students. The Ministry of Energy, Science and Technology has over the last two to three years been in partnership with a number of companies and groups in the sponsoring of science fairs. To me, there ought to be some area in there for engaging some of these young people. If you attend any science and technology fair today, even at the high school level starting out, it is not any longer, "Let's look it up in the encyclopaedia." That's gone by the way. If you look at even the most start-out science projects, they have a sense of innovation and excitement. So we ought to look at those folks, the winners and the ones who are starting out—because this is happening every year. We talk about how our children are our future. Then let's put it into practice where we get some of that kind of involvement.

I've had a number of students as co-op folks for many years. Here's a great opportunity for the research people to get involved in doing some mentoring of research people, because that's a great opportunity for future jobs and they get to see what a researcher does and how he or

she does it. So I think the committee itself has that capacity.

In the Web site development and maintenance, yes, they are going to have to be professionals, but I think there are lots of opportunities for IT people who are looking for jobs to get this experience. That translates for them into a potential opportunity down the line after we've folded our tents.

I think we need to look at those approaches in terms of getting the job done.

**Mr Parsons:** I would certainly concur with the suggestion that we get the subcommittee together as soon as possible and develop a timetable. I'm also starting to lean toward perhaps there being merit in the two rounds of public consultation: hear initially what's out there, get some advice from the research people, and then return in a much better position to ask questions perhaps the second time.

One question I certainly have is that I am not convinced, although we're looking at the future for energy, that we know where we are right now. What fuels do we use now, in what quantities? What are their costs? Are there subsidies on their costs now? What are the side effects of all the fuels that we use? What's the human cost of asthma? What's the financial cost of asthma?

I think before we venture into the future, I personally would like to know where we are now. I look at the 401 and I see eight million cars a second going by, but I don't think we have a real grasp of the quantity of fuel that we're consuming now and what we're putting in the air. I personally would like to get a sense of where we're at at this instant. I know we have to bring changes but I think we can quantify in hard facts why we have to produce changes and that, perhaps, will better define where we need to go.

1120

**The Chair:** I had originally mentioned three ministries, but two more popping into my mind now are finance and health. Maybe we might think in terms of a half day, three hours per ministry, kind of along the thinking of Mr Hastings, where they come in collectively and get us up to date as to where we're at with those particular ministries and what harm is it causing or not causing. Maybe I'm off on the number of ministries we should be looking at. Certainly we'll take advice from the committee.

Ms Mushinski, I think you wanted to comment.

**Ms Mushinski:** Yes, just as a follow-up, I certainly don't have any difficulty with what you are saying, but I think if we have that data, it needs to be comparative. We need to know what it means within the context of perhaps the North American or maybe even the European environment. If we expend 20 million gallons of gas in one day, what does that mean in terms of other jurisdictions, etc?

**The Chair:** My apologies to you, Mr Marchese. You did have your hand up and I missed that point.

**Mr Marchese:** What Ernie and Marilyn were saying I agree with in terms of the kind of base information. I



agree with John in terms of getting all the related ministries together to come and bring their presentations with respect to what they're doing or ought to be doing. They might comment on that, I don't know. I don't think it should be three hours each. I don't think we need that; I really don't. Besides, we can't take it.

**The Chair:** I was just making a suggestion.

**Mr Marchese:** No, I appreciate that. But I think we can get them all together and hopefully expedite that as best we can. I'm not sure what each ministry might need, and it's hard for me to propose what that might be, but I would think anywhere from 45 minutes for each ministry ought to be able to do it and if they can't, it's a bit of a problem. But if we need to come back to it we can—that's the other thing.

I want to suggest first of all that I think there's agreement on the change of title. If we can do it as a committee, we need to request a change of title because the title as it is now written refers only to certain things. We might think it means other things, but at the moment, as written, "fuel" refers to the petroleum, coal industry and agricultural industries and there's been interest in wind energy, solar energy and the others. So I think we need a title change. If we can do it, we should make that request. I think if there's agreement on that, then we can move on.

The other suggestion is about timelines. I think the researchers should put together something that says here are three or four pages we're going to put out to the public, these are the suggestions we think ought to be there in terms of what we are thinking about in terms of alternative fuels and energy and here are the kinds of questions we are putting forth as a way of soliciting feedback. That would happen in September. Our first meeting with the ministries would happen early in September. I would try to get from Marilyn what dates are appropriate so we can try to fix those dates as quickly as we can so we can put out this information to the public as soon as we can. We don't need to wait too long to try to fix those dates in September. I'm not sure we can do that today but I think there's agreement that we should do that in September—that is, the meetings with the ministries and the hearings in the first three or four weeks of September. I think we should agree with that and try to get that done as quickly as we can.

**Mr O'Toole:** It should be in August.

**Mr Marchese:** Well, that's my point. In terms of the Web site, it should come later. Once we have the hearings and we know what direction we're moving in, then we set up the Web site with a specific purpose. We don't want people to just spill their hearts out in relation to what they feel, but I think we should focus the Web site on what it is that we have then agreed as a committee that we are focusing on. It shouldn't just be an open Web site for any comments—that would be my suggestion on the Web site—but it should come after the hearings. My suggestion is that we not try to make a timetable for the whole year now; that we try to develop the timetable once we've had the hearings, which will give us a better sense of what we're going to do. So we agree on the

dates of the hearings, we come back as a committee after the synthesis of it and agree what we're going to do, and then put out a timetable for what we're going to do for the rest of the time.

**The Chair:** OK, the point's well taken.

**Mr Gilchrist:** I wonder if it would be useful to put a motion on the floor, just to move along. I think we're all agreed that hearings are in order, and sooner better than later. It seems to me we have a number of issues before us, so if you'll indulge me a compound motion; we can sever it, if that's the wish of the committee. But let me start off here:

That the subcommittee, with the assistance of legislative research, shall develop a database within the next month of the academic, government and private sector expertise that the committee could access, to assist in the preparation of its report and recommendations; and that the subcommittee be empowered to develop a work plan for public hearings and ministry briefings, including dates, locations and potential witnesses; and that the legislative research service develop a list of potential questions to pose to presenters to assist in acquiring a sound framework for further research and review, as well as potential questions on other content for a Web site; and the Chair, in conjunction with the subcommittee, shall pursue the issue of committee staffing, office allocation and budget.

It's a big motion. I'm comfortable, if all committee members are comfortable with that. Otherwise we might break it down at each end.

**Mr Marchese:** Could I ask you on that last point about committee staffing, did the Chair review that?

**Mr Gilchrist:** No, the Chair with the subcommittee, I said. For example, the BIE probably won't want four people traipsing in, and the Chair would be the first to go to the BIE for the budgets.

**The Chair:** Is everybody clear? Do you understand that motion? It is quite long and detailed. Would you appreciate it being re-read?

**Ms Mushinski:** No.

**Mr Marchese:** No, that's OK.

**The Chair:** Everybody's comfortable? Those in favour? Those opposed? The motion is carried.

**Mr Parsons:** I guess the marching order is there.

**The Chair:** Everybody was in favour.

**Mr Hastings:** In terms of ministries that ought to be involved here, I was trying to go through the list: certainly finance, health, energy, science and technology, agriculture and rural affairs, natural resources—

**Ms Mushinski:** Municipal affairs.

*Interjection.*

**Mr Hastings:** Pardon?

**Mr Marchese:** Let's bring them all.

**Mr Hastings:** MTO. Those would be the top seven or eight. If there are agencies that are linked to them, then you go to them later, like the energy board, if that's required.

**The Chair:** I think there are some key, major ones that we want to hear from first, and then that may trigger the need to go to other areas and other ministries.

**Mr Hastings:** We could just hear them on a first and second level, probably, in terms of where this could go.

**Mr Gilchrist:** Put them in the same room in the Macdonald Block. We're allowed to adjourn to any venue. I don't know, Jim, in your time whether we've ever had that sort of almost free-for-all, where at the same table you've got the Ministry of Health and the Ministry of the Environment and MEST, and when one says something, any member of the committee could then turn to someone else and say, "OK, that sounds great, but"—as you commented earlier—"there may be another side to that coin."

**Mr Bradley:** There's a great advantage to having them together for that very reason, because each ministry has a certain bias. You've witnessed that within caucus, within cabinet, wherever it happens to be. People have witnessed the different viewpoints from ministries. It is an advantage to hear, without exploiting those, the different viewpoints and make a determination where we want to go. Yes. The answer is yes.

**Mr Marchese:** There's also a pecking order, as you might imagine, where some ministries might think they're more important than the others and have more clout than the others. As a result, some ministries might feel a little intimidated. But I think that room thing is a good idea, absolutely.

1130

**Mr O'Toole:** I'd be more comfortable, if I were the Minister of Consumer and Business Services, for instance, where they are acting with small business and they are trying to create—and yet they are involved, because many of these are kind of micro-businesses starting up or whatever. It's hard to think of one that isn't involved.

My only point is this, and I don't mean this in any partisan way: I don't want it to be a shooting gallery for ministries; they won't come. I'd be more comfortable with us as a committee defining specifically what is the data dealing with asthma or whatever for the ministry. I need to know what it costs. We hear that three out of 10, whatever, have breathing problems. It could become a shooting gallery, the ministry rep there, saying, "What's the cost to the health system?" of blah, blah, blah.

I would prefer that we draft concerns—that might be part of our important responsibility—and if necessary, have a contact person with the ministry who is going to watch this file, whether it's energy and science, whether it's environment, whatever, who could respond to concerns and bring forward their—I see a shooting gallery like this. It's like estimates. You bring in a ministry; it ain't productive sometimes. Jim, you know exactly what I'm talking about. It's a great opportunity for you to pull out the little bandstand and start firing off the guns. That's going to ruin the committee's mandate.

I've made the point that if you have questions, it's appropriate to have those questions addressed by the

ministry, whether it's the cost of asthma or whether it's the investment dollars for capital tax relief for some high-tech—

**Mr Marchese:** I'm sorry; I missed that. What—

**The Chair:** Just a minute.

**Mr O'Toole:** The public forum could be reduced by using it as an opportunity to embarrass the ministry, to get press.

**The Chair:** I think we're starting to get into some details here. Mr Gilchrist has put a motion on the floor, and part of that motion is to have the subcommittee deal with some of these issues and get on with having a schedule. I know Ms Churley is not here, but since we're all here now and planned kind of an open-ended day, maybe the subcommittee—and you represent your party—can meet shortly after we adjourn, or possibly at 1 o'clock, to at least look at preliminary directions as to recommendations for the committee.

**Mr Marchese:** You want to have a subcommittee right after this meeting? Is that what you're suggesting?

**The Chair:** That's what I'm suggesting.

**Mr Marchese:** I don't know about that, Mr Chair. Is that what you were thinking?

**Mr Gilchrist:** He said it.

**The Chair:** I'm just trying to get on and make things happen here. This is August 2. We have 10 months less two days.

**Mr O'Toole:** That's two weeks from today.

**The Chair:** Two more weeks.

**Mr Marchese:** Are you serious? I mean, Marilyn is available August 15. I really—

**The Chair:** What I was kind of hoping, Mr Marchese, is that we could draft out a schedule, and when she's back she'd be part of the committee and we'd get on with it. I don't think your thinking and her thinking are going to be that much different in how we draft a schedule of events.

**Mr Marchese:** I don't know about that.

**Mr O'Toole:** I'm not meeting on Fridays.

**Mr Marchese:** We could adjourn this meeting and then talk briefly about some things, if you'd like.

**The Chair:** OK. We'll take it from there.

Maybe I could just turn to research and have them make a few comments about what they've put before us and what their ability is as far as what they can do for us down the road. Mr Gardner?

**Mr Bob Gardner:** Thank you, Dr Galt. We've seen some of our marching orders already with Mr Gilchrist's motion. We can certainly put together the database of experts for the subcommittee to consider and potential questions for you to consider as well.

The short answer to what we can do for you is that we can provide research support at every stage of your deliberations, from the background research that Jerry Richmond has put together already for you, to questions as they arise to help with potential witnesses, to drafting your report at the end. We'll be working very closely with the subcommittee on what we can do for you there.



Two specific comments: you've mentioned the Web site. We clearly hear your consensus that you think this would be an excellent tool for the committee. What I would suggest to you is that we go away and work up a plan and bring it back to the subcommittee in a couple of weeks.

One of the things that I'm sure you'll want to consider is that any Web site the committee sets up be well coordinated with the Legislative Assembly Web site and that we have enough resources to maintain it. As you know, the critical thing with any electronic resource and with a Web site is that once it's up, you've got to maintain it. We certainly have those resources. We may very well be negotiating with the Chair for some additional contact resources to help out with that, but within the assembly we certainly do have the experience and the resources to do whatever you require there.

On the question of specific staff for the committee and the idea of some PhD students, you may want to think back to the experience of the select committee on Confederation in the early 1990s in which the committee held enormous, very extensive hearings. Additional professional staff and research assistance staff were hired for it. They were located in my outfit, in the research service. One thing you will have to worry about with getting academic PhD students in is how to supervise them and

how to make sure the chunk that a particular student is doing coordinates with the work that another student is doing. We're happy to do that kind of work for you.

Again, we can talk about this and offer advice to the subcommittee. We'll bring those deliverables to the subcommittee, and I would suggest that, working with our colleagues, we also bring you at least a draft plan on your Web site.

**The Chair:** I think we've covered almost everything there is to be covered. It's not quite 12 o'clock yet. We're dusting right along. Thanks very much for all the comments from committee members. I think the committee will now stand adjourned—

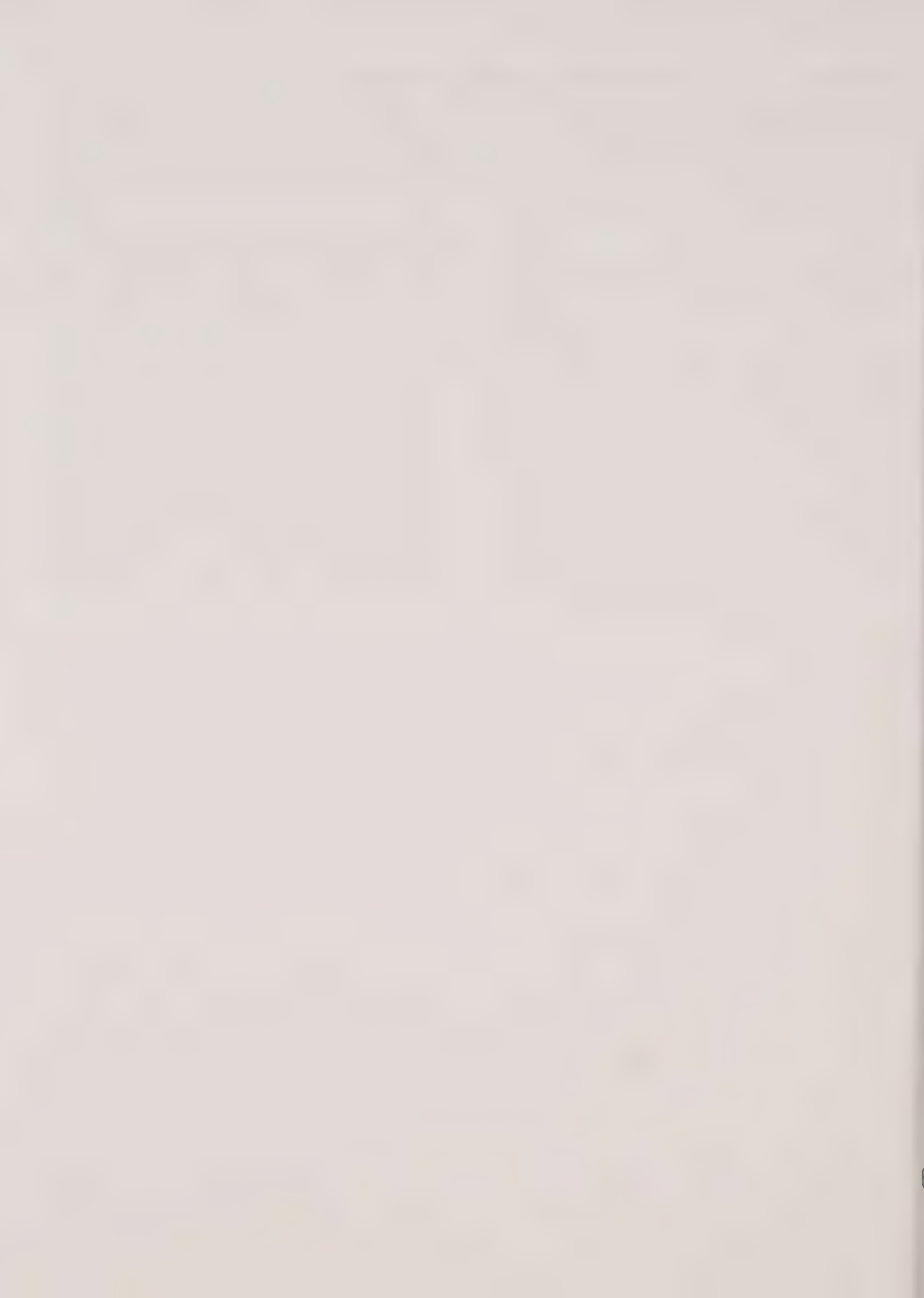
**Mr O'Toole:** If I could make just one comment, and I do not want this to serve in any negative way, but before the subcommittee takes over, I'd like to stay completely informed of all of the steps. There is an appropriate time for the subcommittee to make logistical decisions in terms of our agenda and time, going to the Board of Internal Economy and all that stuff, but I don't want to get segged off into just biomass or just fossil. I'm part of the debate here, and part of that debate is being educated.

**The Chair:** OK. Thanks for your comments. The committee now stands adjourned, and we'll meet with the subcommittee very shortly.

*The committee adjourned at 1137.*











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Mr Doug Galt (Northumberland PC)

#### **Vice-Chair / Vice-Présidente**

Mrs Marie Bountrogianni (Hamilton Mountain L)

Mrs Marie Bountrogianni (Hamilton Mountain L)

Mr James J. Bradley (St Catharines L)

Ms Marilyn Churley (Toronto-Danforth ND)

Mr Doug Galt (Northumberland PC)

Mr Steve Gilchrist (Scarborough East / -Est PC)

Mr John Hastings (Etobicoke North / -Nord PC)

Mr John O'Toole (Durham PC)

Mr Jerry J. Ouellette (Oshawa PC)

Mr Ernie Parsons (Prince Edward-Hastings PC)

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Mr Rosario Marchese (Trinity-Spadina ND)

Ms Marilyn Mushinski (Scarborough Centre / -Centre PC)

#### **Clerk / Greffière**

Ms Tonia Grannum

#### **Staff / Personnel**

Mr Bob Gardner, director; Mr Jerry Richmond, research officer  
Research and Information Services

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## Legislative Assembly of Ontario

Second Session, 37<sup>th</sup> Parliament

## Assemblée législative de l'Ontario

Deuxième session, 37<sup>e</sup> législature

# Official Report of Debates (Hansard)

Monday 27 August 2001

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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Monday 27 August 2001

Lundi 27 août 2001

*The committee met at 0937 in the Superior Room, Macdonald Block.*

## COMMITTEE BUSINESS

**The Chair (Mr Doug Galt):** We'll call our second meeting—we've already had an organizational meeting—on the select committee on alternative fuel sources. Welcome to the first day of hearings, and particularly welcome to the Honourable Brad Clark for joining us and coming out to present. Welcome to the committee. Most of the committee is now present.

The first order of business that we have is to receive and adopt the report of the subcommittee. Would somebody like to so move?

**Mr Steve Gilchrist (Scarborough East):** I move the adoption of the subcommittee report on committee business from the meetings on Thursday, August 2, and Thursday, August 16.

**The Chair:** That includes the budget?

**Mr Gilchrist:** Including the budget.

**The Chair:** I trust this has been circulated and everybody is familiar with the subcommittee report?

**Mr John Hastings (Etobicoke North):** I have a question. Under what item is provision made for a Web site and Web site development? Under advertising? That was one of the specific things that we discussed back in early July, mid-July.

**The Chair:** We could add an item, item 7.

**Mr Hastings:** I would amend the report.

**The Chair:** Would you like to have a friendly amendment to that?

**Mr Hastings:** I would amend the report of the subcommittee to investigate essential expenditures for the development of a Web site for the select committee on alternative fuel sources.

**The Chair:** Mr Hastings, we have been looking into it even though it's not here, just for your information. But certainly it can be added to the motion, or would you prefer a separate amendment?

**Mr Hastings:** As long as we see it in there; I think it's important.

**The Chair:** Mr Gilchrist, it would be a friendly amendment just added to the motion.

**Mr Gilchrist:** Given that we've already discussed costs as well at the previous discussion, I'm happy to consider that friendly amendment.

**The Chair:** Further discussion? Those in favour of the subcommittee's report with that added item? Those opposed? Motion carried.

I'd now entertain a budget motion for the select committee.

**Mr Gilchrist:** Mr Chair, I move that a budget of \$382,200 for the select committee on alternative fuel sources be approved and that the Chair be authorized to present it to the Board of Internal Economy.

**The Chair:** Discussion?

**Mr Hastings:** Does that include the Web site in the \$382,000?

**The Chair:** This specific amount would not necessarily include the Web site; it would be in addition. I'm told we have enough to do the standard Web site, but if we go ahead with town hall meetings and video streaming, extra dollars will be required. This is something that's under discussion currently. But the present budget would cover a standard Web site. Further discussion? Those in favour? Those opposed? I declare that motion carried.

We have an opportunity, as I understand, at 10:30 this morning to take an adjournment for a coffee break and meet with some owners and representatives of cars with alternative fuel usages over in front of the Legislature. Is it the wish of this committee that the committee so adjourn for 20 minutes, maybe 30 minutes, at 10:30? Maybe we could have a motion to that effect?

**Mrs Marie Bountrogianni (Hamilton Mountain):** I move that we adjourn at 10:30.

**The Chair:** Thank you very much. Discussion?

**Mr Gilchrist:** Mr Chair, I think we should recess, as opposed to adjourn.

**The Chair:** Let's get the right terminology. Adjourn forever; that's not the intent. That we recess for approximately 30 minutes.

**Mrs Bountrogianni:** Yes.

**The Chair:** Thank you. Further discussion? Those in favour? Those opposed? The motion is carried.

The other item that maybe should be covered at this point in time is the order of presentations by ministries. You have one suggestion before you circulated by the clerk. I've been handed another, alternate suggestion in a slightly different order that would start with Minister Clark, move to energy—I'll just shorten these—then to environment, to transportation, to natural resources, to agriculture, to health and, finally, to finance. Does



anyone have any preference one way or the other? Maybe we could have a motion to adopt the agenda one way or the other.

**Mr John O'Toole (Durham):** I move that we modify the agenda to suit the presenters.

**The Chair:** The one that's circulated?

**Mr O'Toole:** Yes.

**The Chair:** Or the alternate one, the one I read?

**Mr O'Toole:** The alternate one.

**The Chair:** Thank you, and then continue the next few days the same way, as listed on the second through the last page. Further discussion? Those in favour? Those opposed? I declare the motion carried.

### MINISTRY OF TRANSPORTATION

**The Chair:** We then move to presentations. The Honourable Brad Clark, Minister of Transportation, would you like to lead off, along with your staff?

**Hon Brad Clark (Minister of Transportation):** Thank you, Chair. Good morning everyone. I'm pleased to be here today at this meeting of the select committee on alternative fuel sources. As most of you may know, in my past life I was a bit of an environmental activist in my community. I continue to feel strongly about issues such as those being discussed here this morning and wanted to demonstrate my support for your efforts by addressing you in person.

We all want cleaner air; we're all concerned about climate change. Your investigation into alternative fuels for home heating, electricity generation, transportation and industrial and commercial use is extremely important.

I know you'll be hearing from several ministries today, including the ministries of energy, science and technology and environment. Staff from my ministry will also be making a presentation later focusing on alternative transportation fuels as requested by the committee.

I'd like to take a moment to speak in broader terms about the importance of Ontario's transportation system and MTO's efforts to make this system more efficient and cleaner. More than nine million vehicles are registered in Ontario. About 94% of all Ontarians use the province's highway system regularly. Just about everything that we buy, sell and make—\$1.2 trillion worth of goods—is transported on provincial highways every year. As you can see, we're extremely dependent on vehicles and on our highways. This dependence has presented us with a major challenge: how to deal with the critical issues of air pollution and climate change. This is not new territory for the Ministry of Transportation. The ministry has made progress over the years through policies and programs that helped address pollution by managing congestion and improving the efficiency of our transportation system.

Ontario has long promoted alternative fuels. Alternative fuels are largely exempt from provincial retail sales tax, and purchasers of alternative fuel powered automobiles and light trucks have enjoyed a sales tax rebate

of up to \$1,000. In addition, about 13,000 natural gas powered vehicles are now in use in Ontario, mainly transit buses and light trucks.

The MTO has also been involved in research exploring the use of alternative fuels such as propane. About 45,000 propane vehicles are now being used in the province of Ontario.

The ministry helped develop the province's Drive Clean program, and we've teamed up with the MOE to conduct emission tests on heavy vehicles during some of our safety blitzes. We're constantly searching for new and better ways to apply the latest technology, intelligent transportation systems to maximize the efficiency of our highway network.

Future transportation planning will be extremely important. The made-in-Ontario Smart Growth strategy will help provide transportation alternatives to maintain a strong economy and a healthy environment.

As you can see, the Ministry of Transportation is working on many fronts toward cleaner air. However, Ontario's actions would be much more effective if the federal government showed some leadership in this area. Ottawa has jurisdiction over fuel additives and vehicle standards. The Globe and Mail reported last week that the federal government is considering reductions in sulphur levels in gasoline and diesel. This is something Ontario has been demanding for some time. If this report is accurate, we will be taking a huge step forward.

In my view, a combination of three approaches is needed: reduce vehicle emissions by improving energy efficiency or fuel consumption, maximize the efficiency of our transportation system and influence the demand for transportation.

Let me close by expressing my appreciation for being able to be here this morning. I encourage the members of this committee to be diligent, perhaps even relentless, in your work. The benefits will be long-lasting for all Ontarians.

**The Chair:** Thank you very much for coming forward and expressing your interest and concern, relating back to your previous activities with the environment.

Just a brief comment to the staff who are here this morning. You received a request from the committee to come and stay for the day. The concern the committee had was that we often hear a report or presentation, and when a question is asked: "Well, that's in another ministry." The intent is not necessarily to embarrass anyone but rather to appreciate and understand what happens between the so-called silos. Regardless of how hard we work, those silos seem to remain there. I want to stress that we want to help bridge that for ourselves as well as for you. We appreciate your being here and in particular for being here for the full day. It's going to be very, very helpful for the committee and hopefully helpful to yourselves as you look at this.

0950

## MINISTRY OF ENERGY, SCIENCE AND TECHNOLOGY

**The Chair:** The first ministry to make a presentation is the Ministry of Energy, Science and Technology. For the record, please state your name and those of anyone who is presenting so they're properly recorded in Hansard.

**Mr Rick Jennings:** I'm Rick Jennings, director of the energy policy branch. With me is Perry Cecchini, manager, energy efficiency and renewables. We also have, from the science and technology division, Tony Vander Voet, acting director, research technology and innovation branch, and Nick Markettos, manager, science and technology awareness and innovation.

We have a hard copy of a presentation that we're planning to go through. It's a bit long, so I don't know if we'll devote much time to all the slides. To go over what we're covering, we're going to cover the Ontario power situation; the alternative electricity generation fuels; current programs; future activity that's underway now; alternative transportation fuels, which will also be covered by some of the other ministries—transportation and OMAFRA; and then the science and technology programs and how those fit in with the alternative fuels.

Briefly, to start off in the context of Ontario today, renewable energy is a significant source of hydroelectric power, about 10% of Ontario's energy use and 25% of electricity generation. In terms of the other fuels, the alternative renewable fuels, non-hydro ones today account for about 2.5% of Ontario's energy production. Most of that is wood, wood waste, spent pulp reused in the pulp and paper industry. In the residential sector about 6% is alternative renewable fuels, 10% industrial, and only about 1% of electricity generation comes from those sources.

Page 4 of our presentation gives an outline of the expected demand growth for electricity in Ontario over the next 10 years. This is under the Electricity Act, setting up the electricity market. The Independent Electricity Market Operator is charged with regularly presenting forecasts on the outlook for electricity demand. This sets out the peak demand in both summer and winter. Historically, Ontario has been a winter-peaking utility. This forecast assumes that, given the very hot summer we've had this year, we've actually achieved an all-time peak in the summer. The forecast itself is based on a normal weather pattern, and some of that peaking is because of the extremely hot weather we've had.

The base outlook of the Independent Electricity Market Operator is for electricity demand to grow 1.2% a year on average over the next 10 years. They have also developed a low case and a high case. The low case would be less than 1% and the high case 1.7% per annum. For comparison, over the last 15 years the average growth has been 1.6% per annum, so it's in line with recent historical experience.

Page 5 sets out the current generation capacity in the province. We have a total in use of about 28,000 megawatts. Of that, a significant amount of nuclear capacity is currently laid up, and some of that is expected to come back. At the Pickering A station, which has four 500-plus megawatt units, the first unit is returning to service in the spring of 2002, and additional units at six-month intervals. Bruce Power, which has leased the Bruce nuclear station, has announced plans to bring two of the units of Bruce A back into service.

To say what these are: a significant amount, about 17 megawatts, is non-utility generators that have been contracted. Initially these are signed, long-term power purchase agreements with Ontario Hydro. As part of the restructuring, those contracts are now managed by the Ontario Electricity Financial Corp. Those are mostly natural gas fired, but if you see the breakdown, some is hydro and some of it is small hydro, some of it is gas combined with other fuels such as wood waste or other biomass, and then there's a small amount that includes landfill gas and some other sources and municipal solid waste. The other component is some self-generation. Most of that is old industrial generation that has been around for many years, including ones that Inco, Abitibi and Dow Chemical have.

We have a breakdown of some of the hydroelectric, most of which of course is with Ontario Power Generation, which has all the generation assets of Ontario Hydro; some non-utility generation; some self-generation; some owned by other utilities, the biggest amount of which is Great Lakes Power.

In terms of the next couple of slides, 7, 8 and 9 talk about how the electricity system works and how the generation works. Basically, there's a need for baseload plants which operate, to the extent they can, all-out throughout the year. Nuclear and some of the large-scale hydroelectric run on that basis.

The other category we've shown here is peaking plants, which run to meet peaking loads. There is also—and sometimes they are combined or talked about together—intermediate-type plants, which will cycle to less of an extent. Most of the coal-fired plants previously operated in that capacity. With the reduced nuclear output, some of them have been operating more as baseload plants.

The next, slide 8, just illustrates why you'd have to have this plant, because the demand is variable throughout the day. So we have a slide illustrating on the typical winter day the pattern of demand use, which is obviously low in the early morning hours, starts to increase as people get up to get ready to go to work, there's sort of a peak around noon that kind of levels off, and there's another daily peak when people come home from work to cook their dinner and that type of thing.

So you can see the pattern you have. The nuclear, which is attempted to run all-out; the power purchase contracts and other purchases are running all-out; the hydroelectric, some of which is going to be baseload and some of which will cycle to meet the demand, similar to



coal; then at the top peaks, the highest-cost power, the oil and gas plants are operated, and that's principally the Lennox plant in Kingston. So the context for this is similar to the summer, which has a bit of a different peak pattern because it peaks as the day gets hotter in the middle of the day. So new generation has to fit into one of those modes to operate on the basis that will supply a variable demand.

Page 10: just some background to the system. In Ontario there are 3.5 million residential customers, and the average residential customer consumption is about 12,000 kilowatt hours a year. There are 100 large industrial customers. Those are ones that are over five megawatts at peak demand, and we've got them at an average of about 175 million kilowatt hours a year; 100,000 farms, and they have about twice the consumption of an average residential customer; and 440,000 commercial-industrial customers. Altogether there are about 4.1 million electricity customers in Ontario, and that's customers of the municipal utilities, Hydro One and some of the other utilities.

Next, Perry is going to go through some of the discussion about the alternative generation sources.

**Mr Perry Cecchini:** As Rick mentioned before, if you look at Ontario, if you include all of hydro, alternative renewable power equals somewhere around 25% to 28%, depending on the year of electricity usage in Ontario. If you try to segment hydro and look at it in the sense of small—not small, but what we call low-impact hydro, which are these smaller ones, no damming, low impact on the environment, similar to the way some of the environmental groups look at it, then you're looking at renewable energy use or alternative energy use being about 2% of Ontario's total energy mix. Most of that is small hydro.

You have in Ontario right now wind; installed generation capacity to the grid is 2.4 megawatts. There are essentially two Ontario Power Generation facilities, a 660-kilowatt facility in Tiverton near the Bruce plant, and there's a new one that just went up this week, probably the largest windmill in North America, a 1.8-megawatt facility. That will be opening up on Wednesday.

Other facilities: we have 88, probably, just under 100 megawatts, of biomass. That's biomass on its own. There are another over 500 megawatts of coal-fired biomass which operates with other fuels, and landfill gas, and again, between them we have here 64 megawatts.

1000

Walking through on page 12, that's essentially giving a description of what we call low-impact hydro and saying that we estimate there is probably around 400 megawatts of low-impact hydro operational in the province right now. Of this, 125 megawatts is owned by OPG and has been EcoLogo certified.

With regard to the potential, page 13, we've been talking to the Ontario Waterpower Association. They estimate that right now, looking out toward the next 10 years, with the proper conditions—and I think you'll have representatives from the Ontario Waterpower Asso-

ciation here on Wednesday and they can talk to you about what the proper conditions are—there's 2,000 megawatts of annual generation available for development in the province. This is all water, not just what we call small- or low-impact water. They're talking about 200 to 300 megawatts of new development, 700 to 1,300 of redevelopment and 200 megawatts to 400 megawatts of upgrades.

The estimates that we're providing generally exclude small facilities that are isolated from existing transmission or distribution networks, so these are estimates that are essentially those that can be developed. So isolated types aren't in their estimates.

With regard to wind, as we mentioned before, there is 2.4 megawatts of installed generation capacity in the province. There are some facilities in planning right now. Toronto Hydro and the Toronto Renewable Energy Co-operative are planning two to three 750-kilowatt turbines on the Toronto waterfront, and Huron Wind, a partnership between British Energy and OPG, are planning a 10-megawatt farm in Kincardine.

There is also some other activity going on with regard to other potential generators who are in the process of investigating sites, generally in the Lake Huron area; also in eastern Ontario in Frontenac and Prince Edward counties.

With regard to wind, I guess the estimates that have come out—what we've provided on page 16 is a demonstration that wind is gradually becoming more and more cost-competitive, to the point now that in higher-cost jurisdictions, such as those in Europe and some states in the United States, it is competitive with what you call marginal grid facilities.

Right now in Ontario, the estimate we've been given, which came out at a wind task force that Ministry of Energy staff and representatives from other ministries had been participating in, is about eight to 10 cents a kilowatt hour. That is what wind can be generated at in Ontario at this moment in wind farms, not just single facilities as the one that is going up in Pickering.

On page 17, the purpose of this slide is essentially to bring out the point that with regard to the competitiveness of wind energy, wind speed counts and the wind patterns count, and there is an exponential relationship between the wind speed and the revenues you can generate from a wind turbine. There is an example provided, and if you look at a facility with a 6.4-metre-a-second wind resource, that capacity factor of 24% would result—these are American figures—in a cost of eight cents a kilowatt hour, and if you went up to 7.5 metres a second, a capacity factor of 34%, you can see the price is drastically less.

The other point we wanted to bring out here is that wind is intermittent—it runs at certain times of the day; it's not a constant pattern—so that a reasonable output range for a wind turbine is somewhere between 25% and 30% of the total annual capacity of the turbine.

I think the industry representative of the wind task force will talk to you about some of the patterns they

have detected, and one of the things you'll note is that the capacity factors in Ontario are much higher in winter than they are in summer. For instance, there will be a kind of match with the peaking situations in winter in that on cold, windy days the wind turbines will be running. In summer it's the opposite in that on those hot, humid, muggy days where there isn't much wind you won't have the wind turbines running to the same capacity. But there is some kind of natural correlation in winter.

The slide on page 18 is a rough slide based on Environment Canada data that's some years old, but it's useful for illustrative purposes in the sense that it indicates where the best wind is in the province. You'll notice it's best in northern Ontario near James Bay and Hudson Bay and on the leeward side of the Great Lakes. Most of the development activity that is going on in the investigation or wind prospecting that's going on is around the Great Lakes. Page 19 is a summary slide.

On page 20, the one point we want to bring across is that if you're talking about wind development, you're really talking about wind farms, so that it's not one wind-mill in a location you're talking about; to get extensive generation capacity, you need to have some large wind farms. While these farms will need a lot of land, the one advantage is that they're compatible with other land uses, so they can be used on farms in agricultural sites where they don't take up much space.

With regard to solar, we just have a couple of slides. We are finding very basically that we're a long way off from grid-competitive photovoltaic, or solar, energy right now. It's currently five to 10 times more expensive than existing grid power. The research of the US DOE says it's 10 to 20 years off on photovoltaic grid power. Where you have uses is more in the solar water pool heaters. Those kinds of things are useful now, but at the grid power source it's a long way off.

Right now—page 24—excluding water, biomass is the second most used alternative source in the province, and the demand for biomass increased substantially in the early 1990s as a result of the power purchase agreements between the old Ontario Hydro and existing independent power producers. The growth of biomass, though, is going to be limited to the resource, so while there is potential for more generation capacity, it is limited to what's available in wood residues currently.

We have some slides here on fuel cells. This is potentially one of the more attractive options out there. Fuel cells, however, are right now in the development stage, so there are a number of demonstration units going up in transportation on the electricity generation side, and it's likely to grow rapidly as the technology develops in the next four to 10 years.

Another area where Ontario has some generation capacity that's not fully used is landfill gas. We have about 64 megawatts of existing landfill gas and that, from our facilities, probably could be doubled or tripled in the next 10 years.

What I want to do now is walk you through some of the existing activities to support alternative power sources from the Ministry of Energy and also talk to you briefly about some of the future activities that we're planning. With regard to slide 30, our most important initiative is open access and opening the electricity market to competition. When the market opens by May 2002, basically all electricity generators will have access to Ontario's electricity grid in accordance with the rules established by the Independent Electricity Market Operator. The market rules provide that generators that produce electricity power intermittently, which essentially are wind power or generators smaller than five megawatts, can be self-scheduling. Essentially that means that they don't need to bid on to the market to send power on to the grid. Basically they control themselves and how much power they can sell. Essentially they run when they can and they get the hourly price that's going at that point.

#### 1010

The Ministry of Finance will speak to slide 31. There have been some tax incentives and special tax treatment for the water industry, which I'm sure they'll address.

One of our main initiatives is what we call environmental product labelling. In March 2000 what we call the first phase of our environmental labelling program was implemented. The program provides consumers with information to assist them in evaluating and comparing competitive retail offers. The way the program works at this time is that customers are provided with a label; basically all electricity customers are provided with a label which shows them Ontario's current power mix. It's more of a public information step so that the people of Ontario have an idea of what the electricity system is comprised of in the province.

The other part of the program is if a retailer intends to offer what we call a differential product, which is a product where environmental claims are made, they must provide at the time of offering a label which compares Ontario's current mix with the offer that they propose to sell. This program has been in place since March 1, 2000, which is the date that electricity marketing commenced to consumers. An example of the label is provided on page 33.

We've also included some slides here with regard to our activities under the Energy Efficiency Act. This is one of the more important programs we have in the ministry. Right now we regulate over 51 residential, commercial and industrial products under the act. The act references standards set by the Canadian Standards Association with regard to minimum energy efficiency requirements. We've just completed EBR consultation on a new regulation and hopefully by the end of the fall we'll be up to 54 products under the act.

On page 36 we have some of what we call the results of the program, which generally says that since 1988 the estimate is that the savings in energy costs attributable to standard setting is about a quarter of a billion dollars. It



results in a net reduction in CO<sub>2</sub> emissions equivalent to the annual emissions of over 400,000 cars.

On page 38, we're currently involved with Canadian Energy Efficiency Alliance with regard to an on-line energy efficiency centre which we're helping to fund, and that essentially is to provide design and energy professionals with information on energy efficiency. It's also intended to be a kind of a link and almost an energy efficiency portal for energy efficiency for the general public.

With the slide on page 40, we're moving here into existing processes and activities. The Ontario Energy Board—and Mr Laughren can speak to this in more detail on Wednesday—will be beginning a proceeding on the appropriate role of electricity utilities in delivering energy efficiency programs. They have recently hired a consultant to start doing work on the DSM. They will be engaging in public consultations from September of this year and through next spring.

We are also, along with six other ministry representatives, providing support to an industry task force on wind energy. Our primary role to date has been as an information resource. Currently the task force is developing the recommendations that they will provide to our respective ministers sometime this fall.

With regard to page 42, one of the other things we're developing, to go back to environmental product labelling, is what we call a second phase of the label. That consists of two parts. One part will be a label that will provide customers with historic data on their electricity power purchases with regard to the generation source of the power they produce; it will also provide information regarding environmental emissions that are related to those power purchases.

The other important component of the program is that, with the Independent Electricity Market Operator, we're trying to build a verification system. One of the things we can do at the ministry with regard to supporting marketing of alternative fuels is to develop some kind of confidence within customers that the power they are purchasing in effect got on to the grid. What we're trying to develop is a verification system which will acknowledge alternative power purchases, ensure those power purchases are withdrawn from the system mix that other people who aren't buying alternative products will see on their label. So it's essentially to ensure customers that alternative power isn't being sold twice.

Finally, one thing that we're also working on is we're currently engaged with a number of stakeholders on an environmental certification initiative. This differs from environmental labelling in the sense that environmental labelling essentially provides a fact-based label; it just provides you the statistical data related to environmental electricity purchases and it doesn't make any value judgments regard that. Environmental certification assists consumers in identifying and evaluating environmentally preferable products, so it's similar to the Good House-keeping seal. So it would be a program that would define certain criteria and products that match those criteria

would get a label. That's a geo initiative that's underway. The group includes Ontario Power Generation, Trans-Canada Energy and Canadian Renewable Energy Corp.

I'm going to pass this right on to Rick Jennings.

**Mr Jennings:** The next few slides deal with alternative transportation fuels. Both the Ministry of Transportation and OMAFRA will be discussing them at some length as well. Just to touch on it briefly, Ontario supports alternative fuels through fuel tax incentives, or basically exemptions, retail sales tax rebates, and support for specific ethanol plant construction.

All alternative transportation fuels require special tax treatment, at least currently, to be competitive in the marketplace.

I guess another challenge they'll have is that there will be increasingly requirements for gasoline and diesel to be cleaner, lower sulphur, so their environmental advantage will perhaps be reduced.

Of the next few slides, some of the specific ones: propane, which is used in fleet applications such as taxicabs. The principal thing to bear in mind there is that propane is really a by-product of natural gas production. It's stripped from natural gas when it's produced, principally out west, so its availability is dependent on natural gas economics.

Natural gas is increasingly widely used, again in principally fleet applications. The challenge there is lack of fuelling stations and lack of vehicles, so there is both an infrastructure and a vehicle barrier at the moment.

In terms of battery electric vehicles, the main problem there for wider-spread use is power density so that to supply enough power, batteries have to weigh so much that it reduces the weight of your vehicle. So the principal operating problems there are high cost, the limited range between refuelling and long recharging times, as well as things such as lower acceleration than people are used to from internal combustion engines. Increasingly, I guess, the focus there is on hybrid electric vehicles, which is that the gasoline vehicle basically is charging electricity which is used in operation.

#### 1020

Fuel cells are a very promising technology. One of the challenges in transportation is that they're competing against internal combustion engines, which are a fairly low capital cost. The challenge there is being able to manufacture them at low cost in terms of commercialization. That isn't expected until about 2010 in terms of mass production, although there will be some vehicles in the next few years.

Ethanol is the primary alcohol fuel used in North America. Ontario has a couple of operating plants and one which has been proposed: the 150-million-litre-a-year plant in Chatham, a 23-million-litre-a-year plant in Tiverton, which is near the Bruce nuclear plant, and then the proposed Seaway Valley Farmers' Energy Cooperative in Cornwall.

Then there's a brief one on solar. The main problem there is the electric battery, except more so. You can



build one that will move, but it has to be so extremely light that you can't really move very much with it.

In the next part, Tony Vander Voet is going to go through our science and technology programs.

**Mr Tony Vander Voet:** Good morning. We have a number of programs in the ministry that support research and development in the province. The primary program we have, which has been in existence since 1997, is the Ontario research and development challenge fund. This fund supports the building of research capacity in Ontario universities, hospitals, colleges and other research institutions, in partnership with the private sector. For challenge fund projects the private sector provides a minimum of one third of the funding for the project.

Of the \$500 million that was allocated to the fund in 1997, we have in fact committed \$375 million and have leveraged over \$700 million in private sector and institutional funding. The focus on this fund is for people, for researchers and the tools they need to do the job in research.

The government also has the Ontario Innovation Trust, which operates at arm's length and provides grants for infrastructure for the bricks and mortar for research, again for colleges, universities, hospitals etc. A lot of this is matched funding from the Canada Foundation for Innovation. The OIT provides 40% of funding as a maximum. To date, of the \$750-million endowment, just over \$400 million has been committed, and this has leveraged an additional \$600 million in federal and other funding.

In addition to these two programs, we have the Ontario Centres of Excellence, which since 1988 have served to bridge the gap between university research and industry, focusing on research projects and especially the development of students and high-skilled workers. They are currently in their third-year mandate. There are four such centres. They focus on research, commercialization and training and have projects especially in new material and manufacturing methods which can have impact.

Other programs include the Premier's Research Excellence Awards. This is an \$85-million program designed to reward excellence in Ontario's younger researchers, generally those faculty members and researchers who are in their positions for less than eight years. This allows them to hire graduate students and research associates. Each award is \$100,000 from the province, matched with an additional \$50,000 from other universities or the business community.

The ministry also operates small international science and technology agreement programs. We have programs currently in Singapore and Baden-Württemberg. These involve Ontario university researchers with the international researchers, both with private sector partners to ensure that research becomes commercialized.

Part of our ministry's mandate is biotechnology. We have a goal set out by our minister to make Ontario the third-largest home of the biotechnology industry in North America. We announced last year funding of \$20 million for three biotechnology commercialization centres.

Those are the primary programs that we have.

**The Chair:** Thank you very much for a very thorough presentation. We originally talked about 20 minutes per ministry, but there was so much coming from your ministry that I didn't rein you in. It would seem logical to me, rather than getting into questions, that we recess at this point. When we return, I would suggest maybe three minutes per caucus for questions and then move on to the next ministry, if that's in order.

**Mr Gilchrist:** I thought the questions were to come this afternoon.

**The Chair:** Would you like them all at the end?

**Mr Jerry J. Ouellette (Oshawa):** Yes. Three minutes isn't enough time.

**The Chair:** OK. I was sitting here searching as to that discussion from the subcommittee, so we'll save all the questions until the end. Hopefully everyone here has made their notes. I'm very pleased to find that the major winds are not particularly around Queen's Park but are more in northern Ontario.

Unless there are objections from the committee, we'll recess now for 30 minutes and hopefully be back here by five to 11.

*The committee recessed from 1026 to 1112.*

## MINISTRY OF THE ENVIRONMENT

**The Chair:** We'll get going again. I think maybe we should get a solar clock for some of our committee members, or maybe we can teach them to tell time, whatever. Maybe we can call on the Ministry of the Environment as the next presenter. The floor is yours.

**Mr Tony Rockingham:** Thank you very much, Mr Chair. My name is Tony Rockingham. I'm the director of air policy and climate change at the Ministry of the Environment. I'm joined in the audience by Robyn Tsallis, also with the ministry.

We have a short slide presentation, which I hope members have copies of. We have focused on the questions that were put to the ministry, although we are certainly available to answer other questions and provide other information.

On slide 2, I guess the message we'd like to convey is that we believe that alternative fuels can provide significant environmental and health impacts. We believe that alternative fuels that can displace some of the traditional fossil fuels can reduce some of the major pollutants that are affecting air quality in Ontario. However, we also note that there are issues associated with various alternative fuels and those issues have to be managed as policies and programs develop.

Looking at the non-carbon alternative fuels, renewable fuels, I guess, if you can call wind and sun a fuel, and I believe the committee's mandate is wide enough to allow that, typically, if they are used for electricity production, they can reduce the use of fossil fuels such as coal and oil and as a result, there can be significant reductions in pollutants such as hydrogen oxides, sulphur dioxides and other toxics that contribute to smog. As well, they can

reduce the amount of carbon dioxide, which is a greenhouse gas and contributes to climate change.

However, renewable energy is not without its environmental issues. There are land use issues, as the Ministry of Science, Energy and Technology noted, and there can also be noise and visual impacts and ecosystem impacts. As I say, on any alternative fuel there are likely to be issues and these have to be managed as policies and programs develop.

In terms of the low-carbon fuels—and here we're thinking of natural gas, which has a very much lower carbon content than traditional fuels such as coal—there can be significant reductions in greenhouse gas emissions. Therefore, the increased use of natural gas, if it's displacing coal, can lead to some of the solutions for the future in terms of climate change. However, again there are issues. Natural gas is methane, which is a very powerful greenhouse gas, so any leakages in transportation or any releases of methane as natural gas deposits are developed have to be handled because of the impact on greenhouse gas emissions.

Another classification here is oxygenated gasoline blends. This is essentially where one is talking about adding ethanol to the gas stream as a blend. Again, one can have significant environmental and health benefits, but there can be costs as well. Depending on the source of ethanol, there will be major or smaller reductions in greenhouse gases. Depending on where the ethanol blend is used, there can be significant contributions to smog and the release of toxins which could be important in terms of local impacts.

The fourth category we talked about is alternatively produced fuels: biomass, biodiesel, alcohol and non-alcohol petroleum oils. Again, they can reduce greenhouse gas emissions, especially when one is recycling, so you are reducing the overall use of fossil fuels. But depending on how they are burned and depending on the exact chemical nature, you can have increased nitrogen oxide emissions which contribute to smog. As I said, local issues must be addressed as you deal with alternative fuels.

Turning to slide 3, we just want to give you a bit of a snapshot in terms of current policies to promote alternative fuel and energy sources. Many of the ministries that are here will be able to provide more details on those. In terms of the policies that are under the direct control of the Ministry of Environment, we would point to three initiatives:

The environmental assessment requirements for the electricity sector have recently been amended to ensure that those energy sources which have minimal environmental impact can proceed through a streamlined environmental assessment process so they can be developed more quickly and help displace traditional fossil fuels. Right now we have no Environmental Assessment Act requirements for benign energy sources, and where there are potentially manageable environmental impacts, then there's a streamlined process called a screening curve. We have developed policies to encourage clean energy

sources to be introduced into the electricity system rapidly so they can help to be part of the solution and help to displace more environmentally significant electrical energy sources.

We would also point to the landfill gas regulation, which requires the capture of landfill gas from large landfills—new or modified landfills. It provides an opportunity for the utilization of landfill gas, which is largely methane. As I said, methane is a powerful greenhouse gas, and reducing it can be part of the solution to the climate change issues. I can share with you that the major reason for moving so quickly on landfill gas was because it also provides the vector that transports some other pollutants off-site, so it makes sense both from a global perspective and a local perspective to ensure that landfill gas is captured.

#### 1120

The third regulation we would point out to the committee is the monitoring and reporting regulation. This is part of the government's efforts to ensure that consumers have the appropriate information to ensure that they can make environmentally appropriate consumer purchasing decisions. This is a regulation which initially was focused on the electricity sector but more recently has been expanded to all major sources of air pollution in the province, and requires the monitoring and reporting of a wide variety of pollutants. The regulation requires that the reports from the emitting sources enter the public domain, so that anyone with an interest in sources of air pollution can check the emissions from a wide variety of sources.

Turning to slide 4, I can also share with you some of the proposed programs and policies to encourage alternative fuels or energy sources. Number one would be the cap on NO<sub>x</sub> and SO<sub>2</sub> emissions. NO<sub>x</sub> and SO<sub>2</sub> both contribute to smog. SO<sub>2</sub> is the major emission causing acid rain.

The government has proposed a cap for the electricity sector on both NO<sub>x</sub> and SO<sub>2</sub> emissions. We feel this will be an important element in encouraging greater use of cleaner energy sources, because it now provides a limit to the amount of emissions that can come from the electricity sector, so there is now more opportunity for cleaner energy sources and greater costs that are faced by more traditional energy sources such as coal. They will have to either install the technology to remove NO<sub>x</sub> and SO<sub>2</sub>, improve their efficiency or move to cleaner fuels.

We have had that proposal on the Environmental Bill of Rights registry for comment. We have posted specific limits for the electricity sector and the specifics of the regulation. The government has also proposed that the caps on NO<sub>x</sub> and SO<sub>2</sub> will be extended to other sectors in the coming years.

As part of the emission caps, the government has an additional proposal which we believe will support alternative fuel or energy sources, and that is emissions reduction trading. Specifically in the regulation that is posted on the Environmental Bill of Rights for comments, we have proposed that there be what's called a



renewable energy set-aside, and that includes both renewable energy and conservation. The idea is that where a project results in a renewable energy source producing electricity or a project that results in energy conservation and savings in electricity, those projects will be able to qualify for a  $\text{NO}_x$  and  $\text{SO}_2$  allowance because they have displaced some  $\text{NO}_x$  and  $\text{SO}_2$  emissions. Once they qualify for that, they would be able to sell those allowances into the market and therefore get a financial reward for doing that.

The third initiative we would point out is a proposal to require refineries to report the sulphur levels in the gasoline they are producing. Again, this is part of the government's initiative to ensure that consumers have the information they need to make environmentally appropriate decisions.

Turning to page 5, you specifically asked some questions around landfill gas collection and use as a fuel. The regulation I referred to earlier is Ontario regulation 232/98. It requires the capture of methane emissions from large landfill sites. "Large" is defined as approximately 250 million tonnes of waste capacity.

There are a number of projects that collect landfill gas. I could point to the Keele Valley landfill, where they collect it and then also burn that gas to produce electricity. The landfill gas capture system at Keele Valley produces some 30 megawatts of electricity, and that would typically displace some fossil fuels, both coal and oil. That's enough to meet the electrical power demand of some 22,000 households, so it's a significant project.

By capturing landfill and either flaring it, which converts the methane, a very potent greenhouse gas, into carbon dioxide, a less potent greenhouse gas, you are meeting greenhouse gas reductions. Where you actually produce electricity rather than flare, then you have the added benefit of displacing fuels such as coal, oil and natural gas, which have significant  $\text{CO}_2$  emissions.

My last slide—you asked specifically about the studies the ministry has undertaken to look at policy in other jurisdictions and other countries. I believe some of the other ministries will assist you in reviewing results of some of those studies. We have not commissioned an assessment of energy from waste or alternative fuel energy programs in other jurisdictions.

With that, Mr Chair, I'm available for questions or, as you've indicated, we'll be here this afternoon to answer any questions.

**The Chair:** Thank you very much for the presentation. It is my understanding from the committee that they would like to ask questions of all ministries at the end. We'll move on to the Ministry of Transportation.

#### MINISTRY OF TRANSPORTATION

**Mr Bruce McCuaig:** My name is Bruce McCuaig, director of the transportation planning branch of the Ministry of Transportation. I'm joined by Mr Toros Topaloglu, an environmental specialist with the ministry.

He'll be making the bulk of the presentation this morning.

There is a slide deck in front of you, entitled *Alternative Transportation Fuels: Utilization Issues*, and we'll be focusing our comments this morning on those utilization issues.

On the second slide of that presentation is an outline. Toros will be giving you a bit of background in terms of the use of alternative fuels in Ontario, talk a bit about fuel consumption and the emissions and greenhouse gases that result from that. Secondly, he'll be covering the alternative transportation fuels sector: what are some of the near-term alternatives that are available now as well as some of the longer-term alternatives for the future, and talk about some of the costs and benefits associated with those alternatives. Finally, he'll give a bit of an overview of experiences in other jurisdictions, experiences in Ontario, as well as talk about some potential future applications in the policies and programs that could lead to those applications.

With that, I'll turn it over to Toros.

**Mr Toros Topaloglu:** Good morning. I'll start with slide number 4, where we talk about transportation fuel and energy consumption in Ontario. Transportation is responsible for approximately 25% of Ontario's energy consumption. Petroleum products, which include things like gasoline, diesel fuel, jet fuel etc, supply almost all this transportation energy. Alternative transportation fuels, or ATFs for short, account for approximately 3% of total provincial transportation energy consumption.

The breakdown is listed below. Gasoline accounts for approximately 73%; diesel fuel, 24%; propane, 1.5%; ethanol, 1.3%; natural gas, 0.3%; and electricity, about 0.2% of the energy consumed in transportation.

Slide number 5: road transportation emissions in Ontario can be broken out as criteria pollutants and greenhouse gas emissions. Criteria pollutants are those that are regulated. Currently, road transportation contributes 38% of oxides of nitrogen, 21% of volatile organic compounds, 11% of particulate matter and 50% of carbon monoxide emitted, generated within Ontario's borders. Of course, we get some pollution from across the border as well. That is not part of this slide.

Off-road transportation, such as vehicles used in agriculture, lawn mowers etc, all kinds of things that don't hit the road, contributes an additional 25% to the  $\text{NO}_x$ , 9% to the VOCs, 6% to PM and 17% to the CO emitted in Ontario.

Despite rising transportation activity—approximately by a factor of two—the amount of  $\text{NO}_x$  emitted by road vehicles in 2000 is comparable to that emitted in 1970, which was roughly the beginning of the emissions control era, and is significantly less for CO, VOCs and particulate matter. So if you compare those two end points, transportation has made such progress.

The proposed 2000-10 federal road vehicle emission and fuel quality standards, which is a more important point perhaps, are expected to reduce the amount of transportation emissions further, particularly in the case



of NO<sub>x</sub> and PM. If you wish, we can discuss later on what those standards are.

1130

The next is slide number 6, where we talk about greenhouse gas emissions. Transportation contributes approximately 30% of Ontario's greenhouse gas emissions, which includes carbon dioxide, methane and nitrous oxide emissions. Transportation GHG emissions have been rising. Unlike criteria pollutants, GHG emissions cannot be reduced by add-on pollution control measures such as catalysts or particulate traps. In this sense, GHG emissions present a larger challenge to society.

Transportation GHG emissions may be reduced by three broad approaches: (1) reduce the GHG emissions of individual vehicles by improving their energy efficiency and/or fuel composition; (2) improve transportation system efficiency; and (3) influence the demand for transportation.

The last slide on background is slide number 7, which follows on these discussions. Vehicle manufacturers have developed promising new technologies to improve fuel efficiency and hence greenhouse gas emissions. These include hybrid electric-gasoline drivetrains which reduce GHG emissions in the range of 35% to 48%—there is a range because there are different types of hybrid vehicles out there—and direct gasoline injected engines which would reduce emissions by 12% to 15%. The applicability of these depends on how low the sulphur content of gasoline is, by the way.

These technologies are expected to become widely available by 2010 and provide significant GHG reductions. They will compete with alternative fuel vehicles—I call those AFVs for short—for manufacturers' and users' resources. However, by being combined in the same vehicle, they can become complementary to each other, providing even greater environmental benefits.

Next I will have a brief overview of the near-term, what I call the longer-term, alternative fuels. Slide number 9: in principle, there are a significant number of credible alternatives to gasoline and diesel fuel. These can be classified as near-term or long-term, based on availability and cost considerations. The main near-term alternatives are electricity, grain ethanol, propane, and natural gas. The long-term alternatives include cellulosic ethanol, biodiesel, methanol and hydrogen.

A comparison of fuels should include assessment of the following: (1) all emissions generated during production, distribution and consumption should be compared, not just during utilization; (2) cost of the fuel and all associated utilization equipment and processes needed should provide the level of safety, performance, reliability and durability provided by petroleum products. They have to be considered as well.

On slide 10 we are looking at two alternatives: electricity and grain ethanol. Electricity provides negligible emissions at the point of use; however, there are production and distribution emissions, depending on where electricity comes from, the source of the electricity. It is most suited to guided transit vehicles such as streetcars and

subways. The utility for cars and trucks is limited by the performance and cost of the batteries. Hence, to date, only 3,000 to 4,000 electric cars and light trucks have been sold in North America.

Grain ethanol: grain ethanol has a small effect on criteria pollutants but a significant reduction for GHG emissions. These are provided in numerical or quantitative form later on. It can be readily blended into gasoline and used with minor modifications and cost to the vehicle and the infrastructure. It can also be blended into diesel fuel with some additives.

The low-level ethanol gasoline blends, which comprise blends up to 10% ethanol, which is called E10, require no modifications to the vehicle. On the other hand, high-level blends, which are up to 85% ethanol and are designated as E85, require minor modifications.

Ethanol's cost has been typically double that of gasoline at equal tax treatment. Current transportation consumption is approximately 250 million litres per year in Ontario.

Next we will look at propane. Propane promises significant reductions of criteria in GHG emissions in factory-built, mono-fuel vehicles. It is a mature utilization technology. The cost of vehicle increment is modest and there's an adequate refuelling infrastructure in place. Propane is stored and used under moderate pressure, typically 160 to 250 psi. The propane cost has been comparable to that of gasoline at identical tax treatment. It's available to replace approximately 10% of Canada's gasoline consumption; that is, if we were not to export propane, we could use it to displace up to 10% of gasoline and even perhaps a little more. There are, however, perceived and real safety concerns with indoor operations of propane vehicles and dispensing equipment. Today, approximately 45,000 propane vehicles are operating in Ontario.

The next slide, number 12, deals with natural gas. Natural gas provides significant reductions for criteria and greenhouse gas emissions in factory-built, mono-fuel vehicles. It is a mature utilization technology, with moderate vehicle costs and limited refuelling infrastructure. Natural gas is either stored and used under high pressure or it is stored and used as a cryogenic liquid. Natural gas costs have been comparable to that of gasoline at identical tax treatment. It is available to replace all of Canada's gasoline and diesel fuel consumption, which makes it the only alternative fuel which can do this as it is available in such large quantities. There are, however, some perceived and real safety concerns with indoor operations. Today, approximately 13,000 natural-gas-powered vehicles are operating in Ontario.

The long-term alternatives include cellulosic ethanol, which is covered on page 13. Cellulosic ethanol provides greater GHG emission reductions than grain ethanol; otherwise, it has very similar utilization characteristics to grain ethanol. Production technologies are still in the demonstration stage in Canada. The cost of the fuel is not established but it is expected to be competitive with grain ethanol.

Biodiesel is next. It is the comparable fuel for replacing diesel fuel, rather than gasoline. It would have a minor impact on criteria pollutants but a significant impact on greenhouse gas emissions. The production technologies are not fully established in Canada and one would be concerned about fuel quality, consistency, and compatibility. It can be blended into diesel fuel or used as a neat fuel in diesel engines, ie, it can be 100% biodiesel. The cost is not established at this point in time but it is expected to be in the two to four times range for diesel fuel at current prices. We do not have adequate experience with this fuel in Canada under Canadian conditions at this point in time.

The next alternative is methanol, which is on slide 14. Methanol, otherwise called wood alcohol, would provide significant reductions in criteria pollutants and greenhouse gas emissions, depending on the primary source it is made from. The utilization characteristics are similar to those of ethanol. It can be blended into gasoline up to 85%. It has seen significant transportation use in California and Germany, especially in those two jurisdictions. It is one of the better candidates for use in fuel-cell-powered vehicles. However, it is typically more expensive than gasoline, by 50% to 100%. It is currently not being used to any significant degree in transportation in Canada.

The last long-term alternative is hydrogen. In our presentation it's on slide number 15. It promises major reductions in criteria pollutants and GHG emissions, depending on where it is produced. It can be most readily generated from natural gas and from water by hydrolysis with electricity. It is stored and used either under high pressure or under cryogenic conditions, and while it can reduce the pressure somewhat by using methyl hydrates, it is somewhat different that the high pressure indication here.

#### 1140

The utilization technologies are not fully developed. In principle, it is the best fuel for fuel cells, but can also be used in modified internal combustion engines. It will require, however, a new production and distribution infrastructure. The cost is expected to be significantly higher than that of conventional fuels when we look at the current fuel pricing structure. There are, however, perceived and/or real safety concerns; we don't have sufficient experience with it in fleet use.

Slides 16 and 17 provide some quantitative assessments on the costs and emissions aspects of all the fuels we have considered to this point. The information here is derived from two sources. These are reports done for the Transportation Issue Table of the National Climate Change Process in which we participated. We participated in these studies as well. Very briefly, on slide 16 there are two columns. The first column provides an estimate of the fuel costs of the alternatives relative to gasoline. Gasoline is the reference point, and the rest is compared to that. There are a number of things one might look into. The electricity here is assumed to be derived

from the current mix of electricity in Canada. It is not one source or the other, but the current mix.

One might be surprised at the number indicated for fuel cell, which uses hydrogen from methanol; it's 1.22, only 22% more expensive than gasoline. There are two reasons for this: one is that this assumes that methanol is used on board the vehicle and there's an on-board reformer to convert methanol into hydrogen. This number also benefits from the higher fuel efficiency of the fuel cell relative to the internal combustion engine. Hence this number, 1.22, is lower than the number for methanol, which is 1.56. The primary reason for that is that 1.56 is an internal combustion engine number, whereas 1.22 is a fuel cell number, a more efficient power plant. These numbers account for every aspect of utilization.

The estimated vehicle price is listed in the next column. I guess it would be self-explanatory, but the numbers are for 2010. There are assumptions as to what sorts of technologies will prevail at that time, and there is an assumption that these will be made in quantities.

The last slide which has quantitative information is slide 17. While again these are estimates, they represent the full-cycle—some call it the fuel cycle, but I would call it the full-cycle—emission for the fuels that we considered. These emissions include emissions generated under operation, in the production and distribution of the fuel and in the production of the vehicle; and the production of the vehicle includes all aspects of it, starting from the processing of metals etc, namely to generate the raw materials and then to process them to make what is needed to manufacture the vehicle. So it's a full-cycle emissions accounting, and the numbers are, again, from this very source, which is the report to the transportation table.

The first column is GHG emissions in grams per kilometre. The next one is NO<sub>x</sub> emissions, followed by VOC, CO and particulate matter. I will not take up your time explaining these numbers etc, but if there are any questions, we can get back to it.

I'll then go to slide number 19, which says a few things about the current ATF policies in Ontario. MEST has already said a lot of this and Finance will revisit it, so I won't take up your time.

The next one is Ontario's experience with ATFs. Since the late 1970s, Ontario has supported the introduction of ATFs and achieved significant successes with propane, natural gas and ethanol-gasoline blends. Ethanol, propane and natural gas are now established as practical alternatives in sizable fleets and there is a sizable refuelling network in place. Also, Ontario houses the North American alternative fuel vehicle technology centres of GM, Ford and DaimlerChrysler.

Ontario's natural gas bus program was the first to develop and demonstrate the technology in the world; namely, we were the first to produce factory-built buses that run on natural gas and are competitive with diesel. Propane and natural gas have proven particularly successful in high mileage fleets that can best benefit



from fuel savings, such as taxicabs. Most propane and natural gas product vehicles introduced are after-market conversions. However, manufacturers today are offering a good selection of factory-built vehicles, some of which have been displayed to you.

On slide 21, we're making a small point, which is that Ontario's experience in transit bus demonstrations with natural gas, propane and methanol suggest the need for the following. There ought to be a long-term commitment by users, equipment manufacturers and fuel suppliers. One needs a comprehensive approach that encompasses vehicles, fuels and all infrastructure elements, not just vehicles. Also, one needs research and development to establish standards and best practices and to anticipate and resolve potential user issues before they become problems.

On slide number 22 are the policies and experiences of other jurisdictions. This is very, very sketchy. I don't pretend that we have covered the subject. First, the US federal government has a patchwork of ATF policies—a very great number of policies. Just to mention a few, they have weak mandates for alternative fuel vehicles. The Clean Air Act mandates oxygenated fuels in certain areas where air quality criteria are not met. These oxygenated fuels can be ethanol and have become ethanol. There are now tax credits up to US\$8,000 per fuel-cell-powered vehicle; this is a very recent development. There are subsidies for ethanol. The congestion mitigation and air quality program provides funding for things such as alternative fuels. The Department of Energy's clean cities program has been very instrumental in establishing a rather large alternative fuels fleet and fuelling infrastructure. Also, Americans have put a lot of R&D funding into innovative vehicles and fuel technologies.

Some US states have also supported alternative fuels rather vigorously. Arizona comes to mind as one of those. They have provided large tax credits and grants, sales tax exemptions and HOV lane access. This has been deemed by some to be the richest program in North America, but it is under a moratorium right now. California has regulated, subsidized and otherwise actively supported the use of alternative fuels, particularly zero-emission vehicles.

Looking to other countries, one would see Brazil and New Zealand as being two examples where alternative fuels have captured a large segment of the vehicle market. There is a lot to be said about this; I'm certainly not going to do that right now but we can revisit it if necessary. Argentina, in more recent history, has been rather successful in demonstrating the utility of natural gas vehicles. They have a rather large natural gas vehicle fleet, and that has been accomplished with relatively small support by the government.

On the last slide, we are going to say a few things about potential future ATF policies. Before doing that, one has to understand why alternative fuels have not succeeded at a level higher than what is seen out there. Here I'm listing the results of a survey which was done for the transportation table. It's one of the references

listed at the end of this presentation. There are three references there; this is the third reference. What people have told us is, one, there is a higher upfront cost for alternative-fuel-powered vehicles, the user incentives are inadequate, and there is a perceived and a real reduction in vehicle resale value.

The second major point that has been made is that the infrastructure is pretty limited and the choice of factory-built vehicles also remains relatively limited. The next point is that there is a perceived and a real inconvenience with alternative fuels. That could be range, weight, space, performance, reliability, etc. depending on which fuel we are looking at and what type of equalization technology we are considering. Last but not least, there is a perceived or real uncertainty in the cost, supply and quality of the fuels and vehicles that comprise the alternative fuel business.

So potential future policies may need to be tailored to the unique needs and characteristics of individual fuels, vehicle classes, manufacturer and user groups. A comprehensive strategy may better address both short-term and long-term prospects of ATFs and competing and complementary technical means to address environmental issues.

Thank you for your attention.

**The Chair:** Thank you very much for the presentation.

1150

## MINISTRY OF NATURAL RESOURCES

**The Chair:** We'll move on now to the Ministry of Natural Resources. I would suggest, if the committee members are in agreement, we will let this one complete, even if it goes over the 12 o'clock adjournment point. Rather than adjourn right at 12 o'clock, we'll let you complete the presentation and then we'll take the hour break.

I see no objections, so go ahead.

**Mr David de Launay:** My name is David de Launay and I am the director of lands and waters for the Ministry of Natural Resources. With me today I have Ron Kervin, who is our manager of land management. As you'll see from our presentation, crown land management is a critical part of why we're here today, and that is that many of the future energy resources in the alternative field, whether it's water or wind, will be found on crown resources.

If you turn to the presentation that we have distributed to the committee, you'll see that on the opening slide, in the background, we have a picture of Niagara Falls. I think Niagara Falls gets to the nub of one of the issues that the committee needs to grapple with around alternative energy supply, and that is the magnitude of hydro-electric development that is actually an alternative supply. There has been lots of debate about this over the years and for a while, people considered small hydro to be the alternative while large hydro wasn't, generally speaking because there would be large dams put in rivers, with subsequent flooding and other conditions.



Those who have seen Niagara Falls, of course, realize that thanks to a gift of nature, we have a huge energy source that is one of the most benign environmentally produced hydroelectric supplies in the world. So I think it really challenges us to think through what it means when we're looking at hydro power and trying to come up with exactly what is or isn't in that mix for alternative fuels.

If I go into my presentation, then, on the next slide, as I mentioned, as manager of crown lands in Ontario, that's where a lot of the future wind and water resources are to be found. Through the Public Lands Act and the Lakes and Rivers Improvement Act we have the legislative authority to manage those resources. I want to point out that includes the beds of lakes and rivers, and that's where a lot of those hydroelectric facilities are to be found.

The challenge for the Ministry of Natural Resources in this field, as in any other, can be found on the next slide. We have a vision of sustainable development. There is much debate about exactly what that term means, but I think since the Brundtland commission in 1987, we see the need to have resources there for future generations. At the same time, there is a lot of community and industry development that is based on natural resources. So we're continually balancing, as you see in this slide, that security and sustainability of natural resources with the socio-economic benefits that those resources provide. It's no different in this situation.

Within that, we're looking at economic development on the socio-economic benefits, and also that there is a fair return to the crown for the resources. One of the challenges will be what our tenure policies are and what our rental or royalty rates may be for wind or water resources.

The third box here, which is not immediately relevant to this committee, is our protection of life and property. In there, we include fire, flood and low-water management, a subject that Dr Galt is very familiar with from last year.

Briefly, water power in Ontario—not to repeat all the points, but there are 203 water-powered generating stations on 43 watersheds, an installed capacity of 8,000 megawatts. It's about a quarter of the installed capacity within the province. There are over 275 water-power-related dams, 68 owners, of which OPG is obviously the biggest, Great Lakes Power is the next-largest, as was already referred to, and there are lots of small owners, 1,600 direct jobs. That market situation will change as OPG divests control of its operating assets. So there will be a shifting in the industry in terms of ownership.

I'm going to focus in these next slides on what MNR is doing in relation to water power and then conclude with just two slides on wind power. In the past, before electricity restructuring, the public monopoly of Ontario Hydro generally addressed provincial interests. We didn't particularly have a regulatory regime, as they do in the States, for instance, of the federal energy review committee or anything like that. This was a time-honored practice of different governments working with the

crown corporation. But the competitive market requires a different approach, and we need now to balance social, environmental and economic needs, address new site development pressures and ensure compliance with whatever standards we develop.

A number of years ago, three years ago, as there was a lot of discussion about deregulation of the market, we sat down with the industry and looked at what some of the issues on the water power side would be from deregulation. This is a short list on slide 6: water resource management planning; protection of the resource, compliance and enforcement; allocation of those resources; new site development; secure tenure; fair return to the crown—we get about \$130 million annually right now from water power; and that there be information and science support.

From that, we've then gone on to develop a number of approaches in consultation with stakeholders, First Nations and further dialogue with the industry. We've now made amendments to the Lakes and Rivers Improvement Act. It gives the ministry powers that we didn't have before for regulating the industry: we've looked at industry monitoring and reporting, MNR playing an auditing role, increased penalties under the Lakes and Rivers Improvement Act and profit- and revenue-based penalties. A model that we often use in resource management is our Crown Forest Sustainability Act. For instance, the penalties in there are progressive. You can liken it to progressive discipline, and that's the same thing we're developing with this industry.

We have an information and science support which I can speak to at length in questions, if you want. There's a lot of activity going on in information across land resource clusters, which are MOE, MNR, ag and food and northern development.

The next slide, in terms of looking at water power tenure: one of the challenges for the industry in this new competitive market is that water power is a highly capital-intensive industry and they need to go to the lenders with some kind of collateral. In the past a private developer, a non-utility generator, would go to a bank with a contract from Ontario Hydro and Ontario Hydro's commitment to buy its energy over a period of time, and that's what they would use. It's not the nature of what the market will look like. Any developer, any producer will be just selling energy into the market. So now what is the equivalent that they go to the banks with? Essentially this has become a big discussion with MNR, because the tenure they get on the crown land for their facilities has now become their key piece of collateral. So we've been discussing with them longer-term leases that enable them then to get the financing.

1200

The new site allocation: we've had a policy. In the late 1980s there was crown land as a development tool, fondly remembered as CLADT. We tend to remember everything by their acronyms. At that time we had a first-come, first-served approach to water power development. I liken it a bit to a gold rush, where people then just rushed out, put their stake down on any nice waterfall

you could find, particularly in northern Ontario, and came into the MNR office and said, "That is ours," and that was that. We're looking at that system and we're also looking, as it points out here, at possibilities of shifting more to a request for proposal, where you can get the best economics and the best market approach to who may in fact develop those assets into the future.

Tony Rockingham already spoke about Environmental Assessment Act requirements, and we've worked very closely with MOE on that. One question that has come up is, will there be development in parks? Our minister has been absolutely clear that there won't be.

Critical to our part of the water power relationship with the industry is the water management planning. Essentially that comes down to regulating the levels and flows, as we do with other resources, ensuring that there's public input into that, whether it's cottagers where levels of flows have a huge impact on them, whether it's kayakers, other recreationists who may use the waterways, whether it's fishers; and then fundamentally, of course, we have issues to look at the ecosystem, and one measure of that is fish habitat, the ways the industry may be impacting on fish habitat and streams. So we've been working that through with the industry and developing the monitoring, compliance and enforcement.

The next slide, on page 12, looks at the kind of approach we're taking. It repeats some of the points I've already made, so I won't go through it. To get a little more specific on the aquatic ecosystem side of it: mimicking natural flow regime—native biota, variability—these are key approaches that we're trying to take. Of course, as everybody who goes out into the lakes and rivers of Ontario quickly finds out, we are in a very regulated—I don't mean government-regulated; I mean dams and water control infrastructures. There are over 2,000 water control infrastructures in the province. Again I refer to cottagers, but many people have gotten used to the level of water at their property, and it does not fluctuate in a natural way whatsoever. If it did, we'd have very high water in the spring and very low water throughout most of the summer and into the fall. That's just not the case on most of our waterways any more. So there's a real challenge of balancing the different needs and requirements with some very fundamental ecosystem principles.

Wind power: the Ministry of Energy, Science and Technology has already made a number of points that we would basically concur with. It's now a mature technology. You can look in other jurisdictions—Germany, the United States—and there are thousands of megawatts now of wind power. It's on the verge of having commercial potential. It's now getting within an economic horizon where you can imagine that it would be in a competitive market. We reinforce that the greatest potential for wind resources are along the shorelines and offshore areas of the Great Lakes. So again, crown land issues would come up and other planning issues. For instance, under Ontario's Living Legacy we have a Great Lakes heritage coastline designation, which looks at a

balance of approaches within that area, which includes recreation and other aesthetic experiences. We need to balance that with wind farms along the Great Lakes, which are a great alternative source but may conflict with people's values, what they think that particular piece of coastline should look like.

We too are ongoing participants in the industry task force on wind power, providing information. I list here just quickly what the challenges for MNR will be for wind power on crown land. As you can see from this list, they're very similar to what we've gone through with the water power industry. So one of the very practical matters: we would have to sit down with the industry and look at potential sites. Once we've determined that there's a potential site that would be good for the generation of wind power, then there will be other land use planning issues and the other values in that area: does it conflict or not? Can we get a balance? Once we get there, it's what are our tenure arrangements on those sites on crown land going to be and what kind of royalty or rental will be paid to the crown for that? It's a range of issues that would be quite similar to water power.

We were also asked to comment briefly on the forest industry. We can get into that more during questions. Generally, the economics within the industry have pushed it to cogeneration across the north, and there are any number of examples of cogen where they use a lot of waste wood products, but we can follow up on that more during questions and answers.

**The Chair:** Thanks very much for the presentation.

That completes the presentations from four ministries. We have three more to go. Looking at the clock, it's about five after 12. Why don't we recess until 1:15? That will give you just a few minutes extra. I don't think the next three ministries will be too awfully long, and then we'll have more than adequate time for question period. Any objections?

**Ms Marilyn Churley (Toronto-Danforth):** No, that's fine. May I ask a question—I came in a little bit late this morning—and get just a clarification on the agenda. We have a lot of paper here, and I just want to sort it out.

**The Chair:** There was a change in the order.

**Ms Churley:** OK. I missed that. That's why I'm confused.

**The Chair:** Yes. There was a slight change in order.

**Ms Churley:** What have we had presented and what's left then?

**The Chair:** The ones left are OMAFRA, health and finance.

**Ms Churley:** Thank you.

**The Chair:** There was an adjustment at the beginning. Any other questions?

The meeting is recessed until 1:15.

*The committee recessed from 1207 to 1318.*

**The Chair:** We will call the committee to order. I'd like for the purpose of Hansard to state a correction to the presentation made by the Ministry of the Environment. They just brought to my attention that when they were



referring to slide 5, "Ontario Regulation 232/98 requires the capture of methane emissions from large landfill sites (greater than 2.5 million tonnes)," that's changed from 250 million; it should be 2.5 million tonnes of waste capacity.

#### MINISTRY OF AGRICULTURE, FOOD AND RURAL AFFAIRS

**The Chair:** Our first presentation this afternoon is by the Ministry of Agriculture, Food and Rural Affairs.

**Mr Philip Malcolmson:** My name is Phil Malcolmson. I'm here with Ken Linington. We're both with the policy and programs branch of OMAFRA in Guelph. We're very pleased to make this presentation before the committee, especially in the much-coveted after-lunch time slot. We'll be referring to the presentation entitled *Alternative Fuels: A Ministry of Agriculture, Food and Rural Affairs Perspective*.

OMAFRA has been and continues to be supportive of utilizing agriculture-based commodities and by-products for alternative fuels. We believe there is opportunity for economic development, diversification, and there are market opportunities for farm commodities with environmental benefits. I am also very pleased to see that the committee will have an opportunity to receive presentations from both the Ontario corn producers' marketing board and the Ontario Soya-Bean Growers' Marketing Board, and Biox, which is a company that is developing some emerging technology in the area of biodiesel, and Iogen, an Ottawa-based company.

In terms of the focus of this particular presentation, I think we were asked by the committee to look at the use of alternative fuels by this sector, the ability of the sector to produce alternative fuels, and policies in place both in Ontario and elsewhere.

In terms of use of fuels by this sector, I have some brief statistics in terms of general overall energy use by Ontario farmers. It's a 1996 statistic from Agriculture and Agri-Food Canada, and the total gross dollar amount in terms of dollars spent on energy was \$375 million. We're in the process of getting some more up-to-date statistics through Statistics Canada and I'll make that available to the committee clerk.

The second portion of the presentation is the ability of the sector to produce alternative fuels. I'd like to start by reading a quotation from Rudolf Diesel, who was a German inventor at the turn of the century. He said, "The use of vegetable oil as fuel might seem of no importance in our time. However, such products can gain importance in the course of time and reach an equal status compared with today's petroleum and these coal-tar products." I think that's important to keep in mind when we're thinking about alternative uses. We believe that in some of these instances, for some of these technologies their time has come.

I would like first to speak about ethanol. What is ethanol? Ethanol is a fuel which is generally derived from corn and grain. It's an alcohol. It is little known that

Henry Ford's first Model T Ford was actually powered by ethanol-based fuel. In terms of more recent history, the fuel shortages seen in the 1970s did spawn the re-emergence of the ethanol industry, particularly in North America. The US government introduced legislation in 1979, the Clean Air Act, and in terms of contributing to ethanol demand, it was enabling legislation which allowed cities to force air standards. This provided for gas oxygen content; for example, ethanol in corn belt states. So it did spawn tremendous demand.

There has been a plant in Canada, in Manitoba, for about 20 years. As was alluded to in one of the previous presentations, there are economies in societies where ethanol is a considerable portion of the fuel used in their automobiles. I guess Brazil is the best case in point.

In terms of other emerging uses or potential uses for ag-based commodities to contribute to alternative fuel sources, it's not only ethanol derived from corn, which is a very proven technology; it can also be derived from plant material. Here we're talking about cellulose-based ethanol. There is an enzyme manufacturer from the Ottawa area which is a world leader in this technology, from whom I understand you're going to receive a presentation, that offers tremendous potential. They've developed an enzyme technology to convert cellulose to simple sugars, and that's used for producing ethanol. I guess the relevance for the agricultural industry is that cellulose is derived from such biological sources as straw and corn stover. There is a prototype plant being constructed in Ottawa, through a partnership between NRCan and Petro-Canada.

We understand that this company is also interested in receiving a marketing agreement. For example, right now the ethanol industry receives a reduction in the retail sales tax or the gasoline tax at the pump of 14.7 cents per litre. There is also an ethanol manufacturers' agreement in place, and that provides some guarantee to those manufacturers. Should there be some change to this tax structure, those agreements provide for basically cash in lieu. I guess what this industry is looking for is some parity, and that would give them some assurance of what the marketplace would look like to attract investment.

In terms of statistics for ethanol, the global demand is estimated at about 27 billion litres. The US currently has about 60 plants producing about 1.8 billion US gallons. There are six manufacturing plants in Canada currently producing ethanol. Two of those plants are located in Ontario. They are in Tiverton and Chatham. In terms of the importance of Ontario's production, it is the vast majority of ethanol production in Canada, accounting for 173 million litres of the national total of 238 million litres. I would also like to state that there is additional production coming on line—it's supposed to be coming on very shortly—through the Seaway plant in Cornwall. I guess the expectation is that the construction on that plant would start at some time this fall.

I would also like to note, and I'm sure it's no news to this committee, that federal Minister of the Environment

Anderson announced recently a goal of significantly increasing ethanol production in Canada.

In terms of some of the economic backdrop for ethanol, the USDA has certainly done a considerable amount of work. One of their studies reveals that a plant producing 100 million gallons of ethanol creates about 2,500 direct and indirect jobs, potentially leading to upwards of a 50 cents US per bushel increase in corn price. In some of the other studies that we have and will make available to the clerk of the committee, in terms of the relative economics of ethanol to petroleum-based products, it's also true that subsidies to the oil and gas industry are about US\$54 billion, while US\$8 billion to the ethanol over the last 20 years.

Potential alternative fuel sources from the agricultural industry are not restricted to ethanol. Biodiesel is another opportunity whose time may have come, as envisioned by Rudolf Diesel in 1912. What is biodiesel? Biodiesel is animal fat and plant oil combined with ethanol. Biodiesel can be derived from plant oils such as canola, soybean and corn, which are considerable crops in this province, and animal fat.

Examples of Ontario oil/fat production: there are currently two soybean crushing plants in Ontario located in Hamilton and Windsor. They create 316,000 tonnes of oil, and there is a yellow grease facility or rendering plant in Ontario which produces about 1,500 tonnes per week.

What is the market potential? We think it's significant. For example, if all of the yellow grease and soybean oil were used in a biodiesel or diesel blend, that would only constitute 2% of the entire diesel market in North America, and we believe that has tremendous economic potential for both economic diversification in rural Ontario and alternative crops for our commodities.

While Ontario has production capacity from soybean oil and yellow grease that can become potential sources to produce biodiesel, there are currently no biodiesel production facilities in Ontario. There are some plants in the United States right now. Currently, an Ontario biodiesel demonstration unit has been constructed in Oakville, and that's the BIOX company, which I understand will make a presentation to this committee.

I guess we've seen one of our roles as a ministry to facilitate relationships. Our staff was instrumental in facilitating a strategic alliance between the BIOX Corp, which is seeking to commercialize the technology from the University of Toronto, and the Ontario Soybean Growers' Marketing Board, which is seeking alternative uses for their commodity product.

One of the next steps for the biodiesel industry, if it is to emerge on a commercial scale, is to set industry standards. We understand that the American Society for Testing and Materials is developing standards currently. Canada's National Research Council is in the process of conducting a life cycle cost analysis for biodiesel.

While we have principally discussed alternative fuel sources from grain crops, livestock by-products may also pose a significant new opportunity for new alternative renewable fuel sources. I'm specifically relating to the

production of biogas from animal waste. What is biogas? It's methane-based gas from manure. It's estimated that Ontario farmers produce about 30 billion litres of manure annually. It's also estimated that has a potential electric power of about 500 megawatts if converted to methane. That's about one eighth of the power of the Pickering nuclear generating station and could potentially provide energy to up to 160,000 homes. The economics of this is that there should be some critical mass to produce enough methane to make it economically efficient.

In terms of the policy component that the committee has asked us to speak on, in terms of ethanol there is an exemption from the federal excise tax of 10 cents a litre at the pump. There is also an exemption from the Ontario gasoline tax of 14.7 cents per litre of gasoline. There is currently no exemption for diesel or other fuels such as biodiesel. As I mentioned earlier, we have some ethanol manufacturing agreements in place. Should these tax structures change, the industry or the plants in Ontario have been guaranteed equivalent funding, should that happen prior to 2010.

1330

The ministry's involvement in terms of our programming is that we have provided \$8 million in direct transfers for the construction of the Commercial Alcohols plant in Chatham and we plan to make a similar grant to the Seaway Valley plant in Cornwall once that facility is up and running. Another component of our involvement is, of that money, \$1.6 million was to be available over the next 10 years for research and development for ethanol.

In terms of what's happening in other jurisdictions, I'm going to turn that over to my colleague Ken Linington. Just a few weeks ago Ken had the opportunity to visit Minnesota, which is a state that has a tremendous ethanol production capacity.

**Mr Ken Linington:** I'll start talking about Minnesota as a particular state because of circumstances that they find themselves in and then speak more generally about the US.

Minnesota is a state that is very rich in corn and very poor in energy. During the 1970s and early 1980s they saw the price of corn plummet and they also saw the shortage of fuel, and they really ended up with two focuses. One was to assist the farm community in developing some value-added products on one of their largest farm crops—corn. The second was to focus on sovereignty over their fuel supply. So with that, in 1980, they developed a four-cent-a-gallon tax credit which enticed retailers to carry ethanol. They also looked at what they referred to as new generation co-operatives, and they provided 20 cents per gallon of ethanol produced to producers that participated in a co-operative. So farmers would join the co-operative, and with that joining had to put up some cash to purchase a share and also a commitment to deliver a certain volume of corn for the manufacturing of ethanol.

Along with those two incentives there was also, under the US Clean Air Act, a requirement to put oxygen in the



fuel, primarily for Minneapolis and St Paul, but the state applied it against the entire state, not uniquely those two cities. So with that it became legislated that ethanol or oxygen must be in the fuel, and the choice was ethanol.

Along with that was a fairly strong promotional program to the consumer. There was a lot of hesitation at the beginning as to whether it was a reliable fuel and whether it would impact on existing and older motors. By and large, I think the promotional program provided the comfort that was required. Today, 10% of the gasoline in Minnesota is ethanol or replaced with ethanol and that represents 80 million bushels of corn.

If you look at the broader jurisdictions of the United States, rather than refer to the notes that are on the slides, I think it's important to talk about some fairly recent activities. The state of California has been one of the areas that was identified that required reformulated gasoline, which said they must have oxygen in their gasoline. They have used a petroleum-based oxygenate and that oxygenate had been found to be soluble in water and found in water tables or water sources. With that, through the Environmental Protection Agency, they asked for a waiver and that waiver was not granted. The significance of that waiver not being granted is really threefold.

One is the choice of oxygenate will likely be ethanol, so there will be a huge demand on ethanol. If you look at the state of California, that means 150 million gallons of ethanol in the upcoming year and over a phase-in period that will reach up to 580 million US gallons, which is a tremendous consumption. One person suggested to us that if you look at jurisdictions that consume gasoline, you're probably looking the Europe first, all of the United States second and the state of California third. So California is a huge consumer of gasoline.

The second impact that will likely occur with that is that when you add ethanol to gasoline, it does change the vapour pressure. They are likely to put a waiver on the vapour pressure standards.

The third item that comes along with that is if that ruling holds and ethanol production gears up to service that market, we are likely to see the eastern seaboard also adopt those kinds of structures.

I think one of the significant points one would want to bring into this discussion is that whenever the US talks about alternate fuels, one of the driving forces behind that is the sovereignty of their energy supplies, so it is not uniquely a cost basis, not uniquely an environment base. Just having control over their own energy sources tends to be a driving force for them.

With that, Phil will talk about biodiesel.

**Mr Malcolmson:** Thank you. I'd like to make a few remarks about biodiesel in other jurisdictions.

In November 2000, the United States Department of Agriculture announced the bioenergy program. The objective is to expand industrial consumption of agricultural commodities by promoting their use in bioenergy. This includes both ethanol and biodiesel. The program will be administered through the USDA Commodity Credit Corp and will make \$300 million in cash available over the

next two years to bioenergy producers who increase their consumption of agricultural commodities.

In terms of biodiesel fleet demonstrations, these have taken place in several US cities, and I believe they're proposed in the province of Quebec. On August 7, 2001, the US Department of Agriculture announced that USDA agencies will use biodiesel, and ethanol fuels in their fleet vehicles where most practical and reasonable in cost.

Those are just some of the ways being used to promote the use of these technologies.

Finally, we'd like to say we believe that with some of these technologies, such as ethanol, which have been in place for some time, there is certainly a tremendous capacity in terms of future demand. We believe there are many technologies, such as biodiesel and potentially biogas, which offer significant potential because they are renewable, they have some redeeming environmental qualities, and they offer alternate markets for our Ontario farmers.

**The Chair:** Thanks very much for your presentation.

#### MINISTRY OF HEALTH AND LONG-TERM CARE

**The Chair:** We'll move on now to the Ministry of Health and Long-Term Care.

**Mr Bill Hunter:** Good afternoon. Dr D'Cunha sends his apologies. He had intended to be here today but some issues arose this morning that prevented his attending.

My name is Bill Hunter. I'm senior consultant, environmental health and toxicology, with the public health branch of the Ministry of Health and Long-Term Care.

We did not have specific questions or issues to address in your invitation to appear before this committee. We are therefore providing a short overview on the public health significance of the pollutants which are released from the use of fossil fuels and the role of the Ministry of Health and Long-Term Care in providing advice to the public. I hope everyone has a copy of our slides.

Just as an introduction, as you've heard already, air pollutants emanate from several sources: primarily trans-boundary, industry and transportation. The percentages vary according to the municipalities and the activities taking place there, whether they have large industry, their proximity to high-use highways and so on. Conventional fuel sources used in transportation certainly contribute to air pollution issues in Ontario.

The goal of public health is to protect and promote the health of the population. That includes a variety of programs and initiatives which are delivered mainly by the 37 public health units that we fund in Ontario. We also encourage them to promote reduction of exposures to potentially harmful air contaminants. In relation to that, any decrease in reliance on fossil fuels is important in achieving the source reduction of such pollutants.

Our approach has been that citizens, industries and governments all have important roles to play in achieving those reductions. Citizens may alter their behaviours to

reduce their personal use of vehicles and use other means of transport, including alternative fuel vehicles, but we feel that alternative fuel initiatives need to include studies which will encourage the public both to accept and to use those alternatives. Industries and governments also need to develop and make available such technology and encourage its use.

From a public health perspective, the immediate components of air pollution which result in health impacts are: nitrogen dioxide; carbon monoxide; ground-level ozone; particulates, both inhalable and respirable; sulphates; and sulphur dioxide.

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Nitrogen dioxide is the air pollutant with the greatest adverse impact on human health in most Ontario urban centres. Studies suggest that it accounts for almost 40% of air-related premature mortality and 60% of cardio-respiratory hospital admissions in urban centres. These percentages are of course estimates which are reached by taking existing emission data and applying the findings of accepted research, which has been conducted mainly in Canada and the USA.

Carbon monoxide is estimated to be responsible for approximately 30% of all the premature deaths which can be attributable to the six criteria air pollutants in the urban areas.

Ground-level ozone: even very low levels of ozone in smog cause inflammation of the airways. For persons who are already challenged by asthma, emphysema or bronchitis, smog can have serious repercussions. We know that ozone makes asthmatics more responsive to the allergens which trigger their asthma attacks, and we know that asthma attacks increase, as do visits to the emergency rooms and hospital admissions, when ozone levels increase.

For inhalable and respirable particulate matter, there is evidence to suggest that these are responsible for a substantial burden of illness in southern and eastern Ontario. The full impact of inhalable and respirable particulates is not completely understood, but they are of significant concern. We know that PM<sub>2.5</sub> can penetrate the body's natural defences and lodge deep in the lungs.

Ozone and particulates may also indirectly cause disorders through the immune system.

Sulphates and sulphur dioxide: sulphates are a significant component of particulate matter in the air, both inhalable and respirable. Sulphur dioxide is a precursor of sulphates. The transportation sector and the heating industry are important contributors to SO<sub>2</sub> emissions.

The role of the Ministry of Health and Long-Term Care: through the public health branch, we participate in Ontario's anti-smog action plan along with the Ministry of the Environment and other stakeholders, and we promote the development of local smog action plans by the 37 local health units in Ontario. We provide templates to the health units, encouraging them to work with their local municipalities to develop those smog action plans, and we provide examples where such plans have been implemented successfully. The local smog action plans

are designed to promote actions that can be taken at the municipal level, both to reduce their own contribution to the concentrations of pollutants which combine to form smog and also to encourage their citizens and their staff to avoid their own personal intake.

Further, we also participate on federal-provincial committees on environmental and occupational health with links to national working groups that evaluate the health impacts of ambient air quality.

One of our current initiatives is working with the Ministry of the Environment, the Ontario Lung Association and the Ontario Medical Association to develop examples of up-to-date information which can be disseminated to the public during smog episodes, using the media and other areas where health units have regular discourse with the public. The information that is provided to the citizens has two approaches: firstly, there are actions that individuals can take to minimize exposure for themselves and for their family during smog episodes; and secondly, actions that they can take as individuals to reduce their own personal contribution to the production of smog.

Thank you.

**The Chair:** Thank you very much. Just one question on clarification: under "particulates," PM<sub>10</sub> and PM<sub>2.5</sub> being microns?

**Mr Hunter:** That's correct.

**The Chair:** Thank you.

Thanks very much for the presentation. We have one more, from the Ministry of Finance, and then we'll get into questions.

## MINISTRY OF FINANCE

**Mr Patrick Deutscher:** Thank you, Mr Chairman. My name is Pat Deutscher. I'm the director of the macro-economic analysis and policy branch at the Ministry of Finance. I'm joined, in the audience, by Len Koskitalo of the industrial and financial sector policy branch and Ann Langleben, who is director of the corporate and commodity tax branch. We've given a little slide show that I hope everybody has.

The first slide reviews the questions that the committee asked us to consider. These were, basically: the impact of energy price or supply changes on the economy; economic opportunities associated with greater alternative energy use in Ontario; and tax and other economic policies that are used in other jurisdictions to encourage the use of alternative fuel and energy sources.

We've tried to address each of these topics in our presentation. As you know, our comparative advantage as a ministry is in economic and fiscal matters, so compared to the other presentations that were made today, this one is going to contain rather less technical detail about alternative energy.

Just one quick comment, sort of an apology, is that our survey of policies in other jurisdictions was restricted, given the time available, to just the United States.



Turning to slide 3, Ontario is an energy importing jurisdiction. The absolute availability of supply to our economy has rarely been an issue, but wide fluctuations in world prices of oil and natural gas have, at times, played a very large part in the performance of our economy. The recent oil price volatility has been really the worst since the 1980s.

Energy prices fell to very low levels in 1998 as economic weakness followed the Asian financial crisis and reduced world demand. The price of oil fell to about US\$10 per barrel, leading to a reduction in exploration and development. However, world demand recovered quickly in 1999 and OPEC reduced its production slightly. This relatively small change in the balance between supply and demand led to a sharp jump in oil prices.

For consumers and business, energy is a necessity. In the short term, they reduce its consumption only very slightly, even when the price jumps a lot. Consequently, the price of energy can change greatly in response to relatively small fluctuations in demand or supply. In the longer term, consumers respond to high prices by reducing demand and producers increase output. Market forces cause the price then to return to a central trend.

The price of crude oil—I'm now on slide 4—peaked at US\$37 per barrel in the year 2000 and it's been around US\$26 per barrel recently. OPEC has established a target range of \$22 to \$28 per barrel. They don't want to see the price rise too far above that because they're concerned that it would lead to more rapid development of alternative energy sources.

In the past several months OPEC has maintained considerable discipline and oil prices have been stable. OPEC is unlikely to take actions that would raise the oil price significantly, but if their discipline breaks down in the face of falling demand, prices could drop quickly. Slowing economic growth in the United States will limit growth in energy demand. Exploration and development already have risen sharply in response to the higher prices we saw a year ago, and still relatively high prices today. That indicates that energy supply is going to be growing this year. Large short-term fluctuations in energy prices can occur in either direction but the medium-term trend is quite likely to be downward from the very high levels that were reached in 2000.

Turning to natural gas, as we heard, natural gas is increasingly favoured as a fuel for environmental reasons, and steady increases in demand are expected to keep its price rising. Since the advent of the new pipeline capacity to export natural gas to the United States, the price Ontarians pay is largely determined in the US market. Conventional reserves in the southern part of the continent are declining, and costly pipeline projects to bring gas from the Arctic will add significantly to its transportation costs.

The price of natural gas peaked at almost US\$10 per MCF due to concerns about low inventories at the beginning of last winter's heating season. It has recently fallen back down to around \$3 per MCF in response to increased production and reduced industrial demand.

That \$3 compares to a price of about \$2 per MCF that prevailed through most of the 1995-99 period.

In the short-term, the supply of natural gas in close proximity to markets is very inelastic; therefore, sudden shifts in demand—due to extremely cold weather, for example—could cause price spikes, so further volatility this winter cannot be ruled out. However, extremely high prices aren't likely to persist, since they prompt industrial users to change their use of gas.

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Turning to the impact on the economy, obviously oil and natural gas are among Ontario's leading imports. Given the volume of oil that we import, each US\$1 per barrel change in the world price of oil adds or subtracts about \$250 million from the Ontario economy. Ontario currently buys about half a billion MCF of natural gas per year. This means the roughly US\$1 increase in the price of natural gas relative to 1998, a few years back, leaves business and residential consumers with about \$750 million less per year to spend on other goods and services. That's a significant amount, but relatively small compared to Ontario's gross domestic product of about \$450 billion.

Higher energy prices do not pose the risk today that they did in the past, because the Ontario economy is much more energy-efficient than it was at the time of the oil shocks of the 1970s. Furthermore, a larger share of our output now consists of services and high-technology activities that are not energy-intensive. In 1980, Ontario was consuming 217 million barrels of oil a year. By 1999, with a much larger economy, that had declined to 164 million barrels. Even with the high prices experienced last year, we estimate that the total cost of oil and natural gas imports to Ontario was under 3% of GDP in 2000 and, given the recent trend in prices, will be even lower in 2001.

Turning to the slide marked number 7, the committee asked us to address the topic of economic opportunities associated with alternative fuel and energy. I'm only going to be able to do this in a very general way. Some of the other ministries have already talked to the issue.

In a large and diversified economy with a deep pool of human capital and a wealth of natural resources like the Ontario economy, there is an enormous capacity for business and communities to seize economic opportunities. Deregulation is creating opportunities for new forms of generation to develop that will supply electricity to the power grid. This means opportunities for investment and job creation through projects such as cogeneration and wind power. Deregulation should also facilitate the development of environmentally friendly, small-scale hydro-generating capacity. The opportunity for this is dispersed throughout the province, and there are significant potential benefits for northern and eastern Ontario. As the Ministry of Agriculture has indicated, the agricultural sector can also benefit from further development of biofuels such as ethanol.

The next slides really provide, from the Ministry of Finance perspective, some of the context for economic

policy-making. The basic thrust of Ontario's economic policy is to foster a strong business climate through policies such as lowering the general level of taxation to ensure that we have a competitive tax environment, ensuring that our workforce has the knowledge and skills needed in the modern economy, and removing barriers to growth in the form of unnecessary red tape.

I think this is important to the committee for a number of different reasons. First of all, a healthy and growing economy is much better able to cope with developments such as fluctuations in energy prices and to generate the resources required for research and development and investment in alternative energy sources. Second, and more specifically, a lower general level of taxation may mean there is less scope to use tax policy to encourage some activities and to discourage others. Third, new regulations need to undergo a business impact test, and this should be taken into account to the extent that regulatory approaches to encouraging alternative fuel use are considered.

There are a variety of measures in place that support small business and support research and development. Much of the innovative work in the development of alternative energy and fuel sources is conducted by relatively small businesses. Recognizing the important role they play, Ontario encourages small businesses by cutting the small-business tax rate from 9.5% currently to 4% by 2005. That will be half the rate that applies to larger corporations. More firms will also benefit from the lower rate, because the threshold levels at which it begins to be phased out and at which it no longer applies will also be increased. Ontario has introduced a 10% refundable tax credit for research and development of small and medium-sized firms and a new technology tax incentive which helps business acquire new intellectual property to use in Ontario. These aren't policies that are aimed exclusively at alternative fuel and energy, but they are aimed at the kinds of firms and the kinds of innovative behaviour that will take the lead in developing alternative forms of energy.

You heard reference earlier today about small-scale hydro as one of the areas of economic opportunity. The government and the ministry, working in close co-operation with community and business, have introduced changes that are encouraging the development of small but potentially efficient water-powered generating capacity. Existing property tax calculations and crown water rental rates are being replaced with a new graduated or progressive charge on gross revenues. Basically this applies a much lower tax rate to the smaller scale of hydro development. There are also 10-year tax holidays available for investment in water power capacity.

Turning to slide 11, sales and commodity tax support for alternative fuels, Ontario currently exempts most alternative fuels from the 8% retail sales tax and from the Gasoline Tax Act. Propane, as we've heard already, is taxed at a lower rate per litre than gasoline and is also exempt from the retail sales tax. This isn't unique to

Ontario. It's really almost standard practice in most parts of North America.

There are also, from the last budget, proposed refunds of retail sales tax that are available for the purchase of vehicles that run on alternative energy sources. These rebates are designed to encourage the use and development of alternative-fuel and hybrid electric cars that would reduce our reliance on conventional fuels and reduce emissions to the environment.

Slide 13 turns to corporate tax policies that encourage alternative fuel and energy use. Both federally and provincially we apply an accelerated depreciation rate for energy-efficient equipment. This class of assets is eligible for an accelerated capital cost allowance rate of 30% rather than the rate of 8% that's provided on most electrical generating equipment. The eligible machinery includes cogeneration and waste-fuelled electrical generation systems, active solar systems, heat recovery systems, wind energy conversion systems and geothermal electrical generation systems.

The other existing corporate tax policy designed to encourage alternative energy is a class of recognized expenditures called Canadian renewable and conservation expenses. These are expenditures associated with the development of renewable energy such as the test wind turbines. The expenses are fully deductible and can be flowed through to shareholders. This supports the renewable energy sector by providing improved access to financing in the early stages of operations when there is typically little or no income against which to utilize conventional income tax deductions.

In this context, I should also point out an announcement in this year's Ontario budget of a review of tax incentives. This was one of the recommendations of the business tax review panel. The panel noted that special provisions—tax expenditures, if you will—such as this can make the tax system more complicated and costly for taxpayers. They recommended that the government review existing tax measures to ensure that they remain effective and are still achieving the goals for which they were originally designed.

Turning, in slide 14, to what's going on in other jurisdictions, beginning with corporate tax, a number of US states have corporate tax incentives designed to encourage alternative fuel use. In general these take the form of tax credits, income deductions and accelerated depreciation allowances on particular classes of property and equipment. One thing I should note is that there really is not a lot of information systematically available about how effective these various measures are.

#### 1400

The slide goes on to list some specific examples, state by state. Arkansas, for example, has a 30% tax credit for the cost of capital needed to produce fuel such as ethanol. Connecticut has provided a 50% tax credit for the cost of building filling stations or improving existing stations so they will be able to provide alternative fuels and also to convert vehicles to run exclusively on alternative fuels or electricity. Massachusetts allows corporations to deduct



solar or wind system expenditures for space or water heating from their taxable income. Texas allows corporations to reduce the cost of a solar energy device by deducting the total cost of the system from a firm's taxable capital. Those are a few examples of a patchwork of measures that are in place through the States.

Turning to commodity tax support in the US, again there's a variety of measures to support alternative fuel use. These measures include tax refunds, exemptions, grants, loan supports. For example, there are some states that provide credits against state income tax for part of the cost of solar or wind energy investments. Others provide exemption from property tax for calculation of the value of a property or from the state sales tax for particular classes of investment designed to conserve non-renewable energy. Obviously these measures are designed to be compatible with the US tax system, so they might not be easily applicable to Canada.

This is a very cursory discussion of the types of measures that are in use. The slide cites a Web site that provides a thorough list of measures that the various states use to encourage alternative fuel use.

Finally, the last slide, 16: personal income tax doesn't have a big part to play, although because the US has a different system from ours—no federal sales tax—it is slightly different and more important there. Part of the Bush administration's 2001 energy initiative is a proposal to introduce tax credits that would rebate part of the cost of buying an electric hybrid vehicle, and it would do that through the US federal income tax system. The slide goes on to cite 13 states that we've been able to identify as offering various incentives against state income tax for alternative fuel use.

That concludes what I have to say.

**The Chair:** Thank you. It's much appreciated.

That concludes the seven ministries' presentations. With the committee's indulgence, I suggest that maybe the questioning might be five minutes per caucus and just keep rotating until we run out of questions or we reach 4 o'clock, whichever comes first. Would five minutes be in order, or would you like a larger block of time per caucus as we move around? Is five minutes in order?

**Mr Gilchrist:** Ten.

**The Chair:** I hear 10. Would 10 be more satisfactory? OK. If there are no objections to 10, then we'll go that way.

Traditionally we start with the official opposition. Who would like to start?

**Mr Ernie Parsons (Prince Edward-Hastings):** My first question is to the Ministry of Transportation. Although we're on alternative fuels, which means we want to find an alternative to the carbon-based, very clearly part of our interest—and I don't think it's off topic—is a reduction in the use of carbon-based fuels, just through sheer savings. Having driven into Toronto over the past years, I can't help but note the difference in the number of cars that are on my road when I come in each morning. This province is the only jurisdiction at the provincial or state level that does not fund mass transit. Have there

been any studies done to determine what the effect on the number of vehicles on the road has been by the lack of support for mass transit?

**Mr McCuaig:** I know there have not been any studies of that nature.

**Mr Parsons:** I realize the role you're in. I'm disappointed. So the stopping of funding was done without any determination of the impact?

**Mr McCuaig:** Sorry, I don't think I indicated that. What I indicated was that the particular kind of study you identified has not been done. But I believe that the trade of financial responsibilities between the province and the municipalities was part of a larger exchange and the concept, the principle, was that they were to be revenue-neutral, and municipalities were taking on responsibilities in exchange for the province taking on other responsibilities. I believe that's the fundamental principle that applied through that exchange of responsibilities in the 1995-98 era. The Ministry of Finance or others may want to add to that, but I think that would be the basic response: that municipalities have capacity, in principle, to move into the areas the province moved out of at the time.

**Mr Parsons:** That's a good political answer; I was looking for an engineering answer as to the effect, because we have seen subway construction stopped. Very clearly, the lack of a subway has put vehicles on the road.

**Mr McCuaig:** I believe the Sheppard subway is still under construction at this point in time and will be going through to conclusion. The government fulfilled its commitment to fund the Sheppard subway.

**Mr Parsons:** We read different documents.

**Mrs Bountrogianni:** I have two questions, one for Mr Topaloglu. You mentioned that in Arizona they had the richest program with respect to supporting ATFs, but it's under a moratorium. Can you tell me when that occurred and why, to your knowledge?

**Mr Topaloglu:** The moratorium is really recent. It applies to 2001. It has been put in because there have been abuses of the program. The program said that if you purchased an alternative fuel vehicle, you would enjoy certain tax reductions, and they were very substantial. However, it did not specify how long or to what extent you should be running on that alternative fuel. So people would buy a vehicle like an ethanol-powered vehicle, let's say, which could happily also run on gasoline, never run it on ethanol and yet enjoy the tax benefits that come with that vehicle. Therefore, they have been putting a lot of money into something that did not produce the corresponding benefits, and hence the moratorium.

**Mrs Bountrogianni:** I have a question for someone from the Ministry of Energy, Science and Technology. You mentioned the Ontario centres of excellence and other research programs that could be used toward alternative fuel sources. To your knowledge, are there any studies yet through these areas, Ontario centres of excellence or the Premier's Research Excellence Award, that are looking at alternative fuel sources?

**Mr Vander Voet:** There are no direct projects involving alternative fuels at this time. Most of the research is academic and is based a lot on materials which would support those industries and those technologies. But there's nothing directly.

**Mr James J. Bradley (St Catharines):** My question will be to the Ministry of Energy and it's related to the price of natural gas, which is considered to be cleaner, of course, than coal or oil, and the concerns you see with the free trade agreement, NAFTA, and the specific case of Mexico and the United States as it relates to having to sell, whether we want to or not, apparently—the Prime Minister wants to do it, and the Premier of Alberta. My concern would be in terms of supply of natural gas, and of course with the competition south of the border wanting that natural gas, driving the price up. What do you see as the effect of the free trade agreement and the NAFTA on that price and that availability?

1410

**Mr Jennings:** I guess the North American energy markets, particularly natural gas, have been integrated at least since the early 1990s. There is discussion about further integration but basically they are almost fully integrated now. I think the price will be set in North America, whatever we're doing now. There was a recent barge price increase partly because prices had been low, so there was a reduction in drilling activity. So while there was a large run-up in price, that has already softened as more supply has come on. I think we will be dependent on the North American price, but I think there has been a price response. I'm not sure whether the specifics of the agreement will make us less dependent on the US market for setting the price or not. That's sort of the reality of how the market price will get set.

**Mr Bradley:** Certainly my remarks would not be popular in Alberta, but the national energy program, which no one seems to embrace any more, in theory was to provide Ontario, largely, but eastern Canada also, with in that case oil, but now also natural gas, at prices which were below the world market prices, and an availability as supply-first demand. What you are saying is that the NAFTA now requires that whether there's a greater demand here or not, the demand across North America shall be met relatively equally. Is that correct?

**Mr Jennings:** Based on pipeline capacity, and pipeline capacity has been added to make us more integrated into the US market.

There are obviously different ways of looking at what happened with regulation and deregulation, but in terms of natural gas markets since they were deregulated in the mid-1980s, prices have been substantially lower, until just the very recent couple of years, than they were before. So consumers in Ontario have actually benefited from the deregulation in the period from the mid-1980s on.

**Mr Bradley:** In the longer run, would it not be to Ontario's advantage—and it's difficult to turn back the clock on the free trade agreement, I recognize that, unless you're going to get into a major renegotiation—and of

benefit to our country and to our province, which is the largest consumer of natural gas probably in the country, looking at how much industry we have and so on, to have a Canadian-first policy, that is, a policy which requires that Canadians be supplied first and be supplied at a reasonable price, as opposed to a policy that puts us at the mercy of an ever-increasing market in the United States, as I say, with the Prime Minister of Canada and the Premier of Alberta in cahoots trying to peddle energy south of the border? Meanwhile, we're paying higher prices here and aren't necessarily going to have it available to us if there's a major crunch.

**Mr Jennings:** I guess the position that Alberta has taken in discussions they've had with both the federal government and in the North American context is that under the Canadian Constitution the provinces have management and ownership of their resources.

As you've noted in your first remarks, in Alberta there is a fair bit of resistance to that idea, and certainly that would be the position they would take, that they have the principal responsibility for managing their resources. So this is one reason, I guess, that they would have looked at a made-in-Canada energy policy differently than we did in Ontario.

**The Chair:** We really should move on to the third party. We'll be back to you.

**Ms Churley:** I have a question specifically to the—sorry I don't have all your names—Ministry of Finance. There's a letter we received, and this may involve a political answer as opposed to an answer from you, but it's of some concern because I had a deputation in my office about this as well. It's a letter from the Toronto Renewable Energy Co-operative about small-scale exemption proposals for renewable energy and conservation and environmental protection. They point out in this letter that the Ontario government's commitment, as you know, in Bill 35 said that they would bring in opportunities for that small-scale greener power to come into being in Ontario. They did write a letter—I don't know if you have this letter in front of you—to the then Minister of Finance, Minister Eves, who advised them that there was a possibility of that happening. But to their disappointment that did not happen. They point out in their letter that in order for them to survive and grow and do as promised in that bill, this small-scale exemption needs to be put in place. I should clarify that's the small-scale exemption from the DRC, the debt retirement charge. That's the specific exemption they were asking for. While recognizing that there is a huge debt from, perhaps one could say, misguided nuclear policies—we all recognize that has to be dealt with—I think they make a very good case that unless they get that exemption, they're not going to be able to achieve, as the government promised under the bill, the ends we're all hoping to see as a result of that bill.

I wonder if you have any comment on that. Are there any discussions going on that this might happen for the small-scale producers?

**Mr Deutscher:** Ann, can you answer that?



**The Chair:** Could you come to the microphone and state your name? Thank you.

**Ms Ann Langleben:** Ann Langleben, from the corporate and commodity tax branch.

I'll try to answer your question as best I can. The debt retirement charge: there was a release very recently asking for comments on a proposed set of parameters that had been issued. We are reviewing all the submissions right now and will be bringing forward a summary of all the comments to the Minister of Finance. The bulletin that was issued regarding further details on the debt retirement charge was consistent with the June 2000 release of Minister Wilson on the design of the debt retirement charge. But as I said, we are accepting submissions, and they will all be reviewed.

**Ms Churley:** Do you have any idea of when, after accepting submissions, decisions will be made?

**Ms Langleben:** We hope to have a regulation ready as soon as possible, but of course that will depend on the government's schedule and the decisions that the Minister of Finance and Minister Wilson make.

**Ms Churley:** Right. So in other words, I'm correct in that to a large extent it is a political question as to how quickly this will be—

**Ms Langleben:** Yes.

**Ms Churley:** —the desire to move this ahead. Because this letter says very clearly that, sadly, there has been little action which demonstrates the Ontario government's commitment as stated in Bill 35, but they do offer a good suggestion here as to how that can be kick-started. I'm sure we can take that up in the committee later. Perhaps we as a committee can, in one voice, urge the Minister of Finance to move on that, because it's clear that it would make a big difference to these small-scale producers.

I wanted to ask a general question, and I'm not sure who can answer it. There have been so many good presentations, and it's been good to get an overview of what's going on within different ministries. One of the questions I have—and perhaps the ministry I need to answer it isn't here—is around retrofitting. I believe that in the process of our discussions of moving forward with looking at green energy, alternative energy, alternative fuels and all those things, there is a real need not to forget about energy conservation and efficiency, which of course involves retrofitting buildings. I think we need to start moving forward on that rather urgently. I don't know if there's anybody here who has any knowledge of existing programs and what more can be done around that, or do I need somebody from housing for that?

**Mr Cecchini:** With respect to buildings, you probably do need somebody from housing. I can just reiterate the programs the Ministry of Energy has to encourage energy efficiency. Those lie mainly in the area of developing standards for energy-using products and minimum energy efficiency standards that we continually ratchet up over time—

**The Chair:** Excuse me. I think you're going to have to mention your name. There are so many people answer-

ing here that Hansard is going to go nuts trying to come up with the right name for recording purposes.

**Mr Cecchini:** My name is Perry Cecchini. I'm from the Ministry of Energy, Science and Technology.

As I was saying, I think our activities generally lie within the area of developing standards. We will also be observing the Ontario Energy Board's proceedings closely, their consultations on the appropriate role of electricity utilities and promoting DSM. That's one consultation we're going to be looking toward this fall.

1420

**Ms Churley:** If I could follow up on that, perhaps you could supply to the committee any information your ministry has on the amount of energy that can be saved from completely—I presume that studies have been done to show the impact of retrofitting buildings, particularly older buildings. Do you have that kind of data?

**Mr Cecchini:** I'd have to check with staff. I'm not aware of any current data that we have on that.

**Ms Churley:** That's one of the areas where we've got all kinds of good submissions and deputations, but I see a bit of a gap, although it's been mentioned. You're right; you did mention it earlier. I think it's an important component of this and it would be useful for us to have any kind of data and information that's available so we can also, while we look at alternative fuels, look at the impact of more retrofitting and conservation.

I think those are the questions for now.

**The Chair:** Thank you very much. We'll now go to the government side.

**Mr Ouellette:** Thank you, Mr Chair. I'll start off with the ministries as I saw the presentations.

Science and technology: earlier on you mentioned the wind power and that the best locations were along the James Bay and Hudson Bay coasts. What would it cost to hook up to the grid, as there is no hookup from those locations? Any estimates of what it would cost to hook anything up from those locations?

**Mr Jennings:** I don't think we have specific—because it would all be site-specific. The transmission grid goes up as far as Moosonee, which is on James Bay. There is a planned extension that goes up a bit further than that, up to Attawapiskat, so it would bring—

**Mr Ouellette:** What's the cost of going to Attawapiskat?

**Mr Jennings:** It's obviously much more expensive than lines here. There certainly had to be special arrangements made to make it financeable, but Hydro One is putting it in. We can get those numbers to the committee. That would bring in more of that area.

The other thing with some of these sites is that, depending on how big they are, you'd have to make modifications to actually hook them up to the grid, because the grid in this case is fairly high voltage.

**Mr Ouellette:** On slide 23 you talked about use of forestry and agricultural residues. Currently in Hearst there is a manufacturer that uses wood waste by-products and natural gas for generation.

**Mr Jennings:** Yes.

**Mr Ouellette:** Do we have much detail on that? There are a lot of other locations throughout Ontario that currently take their wood waste by-products to the dump as opposed to utilizing them in the same fashion they do in Hearst.

**Mr Jennings:** The Hearst plant, which will be in some of these numbers we have on the totals, is a line, I think, with the TransCanada PipeLines compressor station that is nearby. The wood waste is actually trucked to there and they are able to use the heat. I guess, in terms of how unique that is, there are numerous TCPL compressor stations, so that particular thing where there is a lot of wood waste—Hearst, of course, also has the sawmill.

**Mr Ouellette:** But there are no other further plans for utilization in the same fashion that we know of?

**Mr Jennings:** I think people are looking at that and some of these investments may go forward when the market opens. Of the proposals that are out there, several of them are in wood waste, so I think people are probably looking at varieties of those. That particular thing may be unique because it's the compressor station and the sawmills. They've had an incentive to try to move that waste, to use it, for some years.

**Mr Ouellette:** Being that electricity pricing is based on peak load, have you talked with or had discussions with any manufacturers in order to try and reduce peak load operations? For example, one idea would be putting timers on dishwashers or dryers or washers so that peak load could be reduced by having them go on at 4 o'clock in the morning as opposed to the normal time. Has there been any discussion or any looking at those sorts of aspects?

**Mr Jennings:** Those types of things have been studied and there have been experiments with them. In terms of how people will respond to prices, there are meters that respond. They are, of course, more expensive than what people normally have, so that has been a barrier to their adoption. In terms of how people themselves will respond to that, unless there's a big difference in price, people may not respond very much.

Large industrial customers, the way the market works, can be what's called dispatchable loads, which means they can be interrupted when the price reaches a certain amount. Because those are all sort of a large load at once, it has a fairly big impact on the system, so that is going to be part of the electricity market.

**Mr Ouellette:** You mentioned the \$375 million spent in the Ontario challenge fund. What do we have to show for that in this field so far?

**Mr Vander Voet:** In the field of alternative fuels, we don't really have anything. The challenge fund and the Ontario Innovation Trust are both application-based. The applications come from the research institutions themselves with their private sector or other partners. The government funds do not go out by any specific sector. We have worked with various groups to apply for funding, with companies. The problem in the past has been that these are largely research-based. We are looking at changes to those procedures to try to get into more

development-type projects, but up until now it has been research-based.

**Mr Ouellette:** Ministry of the Environment: on slide 3 you mentioned the landfill gas regulations. Does this take into account all the old sites? Do we have listings of the old sites throughout Ontario, or is there any way to identify any of the old, potential problem sites? Are they being currently looked at?

**Mr Rockingham:** The slide that you are referring to just notes that there is a regulation that says that large sites that are new or modified must have landfill gas capture. I take it your question is, have there been studies associated with requiring landfill gas capture at existing smaller sites?

**Mr Ouellette:** Yes.

**Mr Rockingham:** I believe there was some analysis of that, but of course the costs would increase because you're not able to take advantage of the economies of scale.

**Mr Ouellette:** OK. There were also some discussions about the sulphur in gasoline. I know the industry, being the automotive industry, when dealing with diesel fuel, trades off fuels for sweet crude coming in, and a lot of the high-sulphur-content gas goes to home heating fuel. Has anything been looked at in dealing with sulphur content in home heating fuel? Essentially what the industry is doing is trading off Peter to pay Paul, so we're still getting those high-sulphur-content fuels but it's being dealt with in home heating fuel as opposed to diesel.

**Mr Rockingham:** There are regulations right now that limit the sulphur content in some of the fuels used in the Toronto area, and we are looking at a whole range of opportunities in terms of limiting the sulphur content for just the sorts of fuels you are talking about.

**Mr Ouellette:** I'm going to bounce back over to the MNR just because of time. In regard to the dams, I know British Columbia has low-flow hydro generation. Recently, in August and September 1999, the Onaping Falls dam was reconstructed. My research indicates that it has all the components of low-flow hydro generation, yet nobody looked at utilizing these low-flow dams in Ontario for hydro production. What can the MNR do through its conservation authorities, who regulate a lot of these low-flow dams, to encourage the use of these waterways to produce electricity?

**Mr de Launay:** I'm not familiar, actually, with the Onaping Falls dam.

**Mr Ouellette:** That's just one location. There are hundreds of them in Ontario.

**Mr de Launay:** Our approach at this point has not been to be proactive with any of the dam owners or developers around potential hydro power, but to wait for the market opening to create the economics that would mean it would become more viable to make these developments. So as we move into the future of the deregulated market, if any proponent came to us asking for approvals for developments or whatever, we would look



at it then on a site-by-site basis. That's been our approach up to now.

**1430**

**Mr Ouellette:** I personally believe that a lot of these dams are underutilized and could be used for generation, and we could add to the grid substantially, currently using water-producing facilities.

You also mentioned the gold rush claims for northern Ontario or somebody finding falls and then putting a stake on them. Are there problems whereby people will protect your industry and go out, in a lot of the same fashion as I've found in mining, and put claims on with no intention of developing them? What happens in these non-utilized, claimed locations after what period of time?

**Mr de Launay:** At this point nothing has happened. All this occurred in the late 1980s. Then there were discussions with Ontario Hydro before their restructuring and a small number of sites were developed. Since then, nothing has happened to any of those sites. So that's part of the considerations of looking at the allocation of these sites into the future.

**Mr Ouellette:** I know my time is short, so I'll go to the Ministry of Finance. You had mentioned a number of jurisdictions that have a large number of tax incentives. I personally know of corporations that are selling environmentally friendly fuel around the world and are having a lot of problems with the Ministry of Finance in determining the taxation rate for non-recognized fuel. We talk about ethanol here, which is established. However, there are others out there that are being sold. Ontario is the jurisdiction of choice for these individuals, yet we seem to be putting up roadblocks and not bringing them into the province. What policies are going on to change that so we can bring new companies in to look at Ontario for basic distribution in North America rather than just utilizing methanol or ethanol?

**Mr Deutscher:** I'm looking back to see if I can once again turn to my colleague for this, if she's familiar with this issue, because I'm not.

**The Chair:** Would you state your name, please.

**Ms Langleben:** It's Ann Langleben from the corporate and commodity tax branch of the Ministry of Finance. I'm not aware of the roadblocks you're referring to. I'm not sure whether it's—

**Mr Ouellette:** What it appears to be is that the ministry does not know how to tax a new environmentally friendly fuel. Is it taxed the same as natural gas? Is it tax-exempt for five years, as is fairly much the unwritten policy within the ministry, or what do they do? Right now, as of February, there was almost a decision made, and then we had a change in ministers at that time whereby now these individuals are being referred to get approvals from I think five different ministries before financing will even look at it. So it has caused a huge delay. In the meantime, we have all these other jurisdictions that are offering tax incentives and they're looking elsewhere. We could use a large base industry for North America.

**The Chair:** Maybe this is something you can get back to us about.

**Ms Langleben:** Yes. I'll consult with my administrative colleagues.

**The Chair:** We should move on to the official opposition again.

**Mr Bradley:** My first question is to the Ministry of the Environment and it's in regard to volatile organic compounds and what the present Reid vapour pressure requirements are at the Ministry of the Environment. Can you tell me what they are today, dealing with low-level ozone, and how those would compare with other jurisdictions?

**Mr Rockingham:** I'm sorry, I'm not able to quote you what the Reid vapour pressure is. We do have volatility restrictions which require reductions in the RVP.

**The Chair:** It's different in the summertime versus wintertime.

**Mr Rockingham:** That's correct.

**The Chair:** I believe it's 62 kilopascals for the summertime. It was reduced from 72 to 62 back in about 1997.

**Mr Bradley:** How would that compare to, say, the Reid vapour pressure now required in the New England states? Would you have that information?

**Mr Rockingham:** I'm sorry, I don't.

**Mr Bradley:** You'll be able to get that information for me?

**Mr Rockingham:** We could get back to you.

**Mr Bradley:** Thank you very much. If I may, there is a worry out there that coal-fired plants are going to be stoked up for the purposes of exporting electricity. Is the Ministry of the Environment expressing a concern? I understand, as the Minister of Energy said, that in the past coal-fired plants were for peaking purposes. So we saw them stoked up in the summer, in the great heat, when there was a great demand for electricity, and in the winter when there was a great demand for electricity, but they were considered to be peaking. I thought I heard a comment that they're no longer entirely peaking. In fact, they use more for the regular production of power. Does the Ministry of the Environment have a concern, if there is considerable energy to be exported in the form of electricity to the US, that it will cause greater environmental problems for Ontario if we stay with coal?

**Mr Rockingham:** I think the policy on that is that we have a proposal right now to cap the NO<sub>x</sub> and SO<sub>2</sub> emissions, which are two of the major pollutants associated with coal-fired stations. Those caps will decrease over time so that the amount of pollution that can come from the electricity sector will decrease.

It's also a recognition that we live in an air shed. Whether electricity is produced in Sarnia or just across the border in Michigan or Ohio, there's a strong likelihood that we will receive the pollution from those plants. So I think the recognition is that there is an air shed, and what we are trying to do is encourage reductions right across the air shed. That's part of the logic in the emissions trading proposals that have been put out for

public comment, whereby we are allowing emitters in Ontario to search out ways of reducing pollution in Ontario but also in states in the air shed, recognizing that in terms of the air quality in Ontario, it doesn't much matter whether the pollution is produced on this side of the border or just on the other side of the border.

**Mr Bradley:** This is a little off topic, so I won't pursue it, but I don't think the people who live directly downwind from the Lakeview generating station, Nanticoke, Lambton or the two in northern Ontario would be as optimistic about that as you have been today.

If my colleagues have a question, fine, otherwise I'll pursue one.

**Mr Parsons:** I do.

**The Chair:** We'll keep coming around.

**Mr Bradley:** My colleague does.

**Mr Parsons:** To the Ministry of Finance: I leave home at about 4:30 on Monday mornings to drive here, and at that time on the 401, coming from the east, I'm the only car. There are about 18 billion trucks, but I'm the only car. I can't help but notice, as I drive in, these railway tracks on each side of me in places, and very rarely do I see a train on them. Sometimes the government can do things by regulation and sometimes they can do them by policy. The policy will cause things to happen without it being regulated. Railways by and large pay for everything. They pay taxes on their right of way; they assume full costs; there is no rail track provided for them. Taking trucks off the highway and putting them on trailers behind a locomotive obviously fantastically reduces fuel consumption. What is the Ministry of Finance's policy, or is there anything being looked at that would encourage freight to move on to the rails and thus save the consumption of diesel fuel?

**Mr Deutscher:** Once again, I'm afraid I don't have specific information about policies. I'm not aware of anything that is specifically at present designed to encourage cargo to move from trucking to rail. I will go back to my ministry to see if there is further information we can provide the committee with.

**Mr Parsons:** Safety and traffic congestion aside, there has to be a tremendous incentive to reduce fuels by simply moving to railways.

Do we have time?

**The Chair:** We certainly do. You have another three minutes, roughly.

**Mr Parsons:** I have a question, and I'm not sure to whom, because no one mentioned it, but I'll try the Ministry of Energy, Science and Technology. There has been no reference, unless I missed it, to geothermal energy. Has that been investigated as feasible anywhere in Ontario for the production of electricity?

**Mr Cecchini:** The reason we left it out is that we didn't see it as a viable option in Ontario, in the sense that there really isn't a lot of resource there for us to exploit.

**Mr Parsons:** It has been looked at?

**Mr Cecchini:** It has been looked at.

**Mr Parsons:** And it's not viable. OK. Thank you.

**Mr Jennings:** As you say, Ontario's potential is much lower than places like California or Iceland or even western Canada where it is viable. Ontario has a much lower potential.

**Mr Parsons:** Is there a break-even point on the cost of crude that would at some stage make it viable in the near future?

**Mr Jennings:** In theory there would be, but I guess in Ontario it would be viable long after anywhere else. We don't have any readily identified geothermal resources in the sense that California has. They clearly do. Alberta has some.

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**Mr Parsons:** We don't have any because we haven't looked for them or they're not there?

**Mr Jennings:** They're certainly not readily there. No one has identified where Ontario would have a really good advantage in terms of developing geothermal.

**The Chair:** There's still time if you'd like to take a little more.

**Mr Bradley:** Yes, I would. To the Ministry of Energy: one water operation that has a lot of potential would be what is referred to as Beck III in Niagara Falls. At the present time we have a lot of generation of hydroelectric power, genuinely hydroelectric power, in Niagara Falls. There was a proposal a number of years ago to proceed with what was called Beck III, being yet another operation that could produce hydroelectric power. Where is that at the present time? Why is that not being pursued? What are the roadblocks to it? I don't think there were significant roadblocks environmentally, initially at least. So I'm wondering whether it's environmental roadblocks or it's money or what the reason would be for not proceeding with that when it is relatively benign electricity.

**Mr Cecchini:** From what I understand, for the full development of Beck III there are some cost implications to the corporation. But I think it would probably be a question that would most appropriately be directed at the OPG representative when they're here on Wednesday morning.

**Mr Bradley:** You're not aware of any reasons, or you simply prefer to have them state them?

**Mr Cecchini:** I'm aware of some, but I think they can deal with the question in much more depth, which the appropriate answer probably requires.

**Mr Bradley:** Are there any incentives that your ministry would provide to them to proceed with that project, or would you consider that to be inappropriate to have an incentive to proceed with a project of that kind in the context of deregulation, in the context of an open market?

**Mr Cecchini:** I think we can talk about what we have in place in the sense that essentially what we have in place is that we're opening the market. The price will be driven by the market. What we are doing right now is to support so-called environmentally preferable energy. It's essentially going to be a premium product in this electricity market, so what we're trying to do is develop an



environmental labelling program which would help those people who wish to market that product get the value that that product properly deserves in the marketplace.

Essentially, to describe that, let's say the price of generation of electricity is right now, on average, four and a half cents to five cents a kilowatt hour. From what we've seen on environmentally preferable projects, or what we call alternative projects, be it wind, new hydro development, some biomass, the price is probably going to be in the range of four to five to eight cents, and in some places, 10 cents a kilowatt hour. The market will take of the five, essentially, through the IMO market. What we're trying to do is develop a program, to have a program in place which will allow in the marketing of what you call the green attributes to customers, both industrial and residential customers, to provide some kind of verification that in the transaction that's taking place between the marketer of the electricity and the customer there will be appropriate verification that the product they're buying in fact got on the grid and was sold to that person or company. That's the kind of program we have in place to support the marketing of environmental products right now.

**The Chair:** We'll move on. Ms Churley, do you have some questions all ready to go?

**Ms Churley:** Yes, thank you. Coming back to the Ministry of Finance, I want to come back to page 13 of your presentation. I should have taken notes, but I believe you said that you'd be happy to or you could elaborate on this.

On page 13, you mentioned, "Business tax review panel: businesses prefer lower tax rates to tax incentives." I didn't catch what you said about what decision was made around that, because of course on the next page, although it's federal in the US, you talk about some of the corporate tax incentives. I come back to my thesis again, that unless we find ways to get these renewables in some way cost-competitive so that people will actually buy the power from them, then we've got a problem. There's a lot of stuff we all know that's already out there. You outlined some of them today—the windmill, the huge one that's going up. We don't want to be reinventing the wheel in some cases here. What I'm really concerned about is making sure we have the kind of tax structure—and I know it's partly federal and partly provincial—that's so important if we're going to be able to get this stuff off the ground. Can you comment on that?

**Mr Deutscher:** Yes. That was a request from a business tax review panel that was established prior to the 2000 budget and then reconstituted before the 2001 budget. The idea is that businesses sometimes find the tax system more complicated than is worthwhile if there are a lot of different complications and special incentives, and that should be systematically re-examined. They weren't saying that each and every one of these special measures is not worthwhile. They just said, "Go back and check. Make sure you are achieving the end that you desired." In particular, when policies have been established in the past, they should be re-examined periodically

to see if they're still meeting the goals that were originally set out. It was not intended to be a categorical objection to tax incentives.

**Ms Churley:** So in this case, the fact that this is here and that businesses say they prefer lower tax rates—of course they do—to the tax incentives, that doesn't mean—that's what I'm trying to clarify—that the government has not made the decision to move in that direction, so looking at various tax incentives in this particular case is not off the table. It doesn't say that.

**Mr Deutscher:** Absolutely not. It doesn't say that.

**Ms Churley:** But it's one of the things that will be looked at in the whole mix of taxation policies?

**Mr Deutscher:** Certainly it's bringing a Ministry of Finance kind of perspective to it but, yes, it's basically intended to be a statement of something that should be borne in mind: is this extra complication going to be worthwhile in terms of achieving the result?

**Ms Churley:** Did you find, again in your short presentation, that the little we know, or what's been presented here, about the incentives in the US in terms of kick-starting the green energy, alternative energy, has made a difference? What information do we have about that and about what states and what the federal government do? I think we also need to take a look at the role and responsibility of both levels of government, in terms of tax incentives and other means, to help alternative energy get off the ground.

**Mr Deutscher:** Yes. In general, I think that some of the commodity tax incentives appear to have been clearly effective when they're large enough to encourage consumption of alternative fuels. That has clearly made a difference in the United States. I think that the size of the jurisdiction has mattered a good deal as well. We referred earlier to how large the California market is in terms of people driving, and so measures that are taken there probably have had a significant impact on the evolution of the auto industry. In general, though, in the short period of time that we spent looking at the literature, we didn't find a systematic assessment of the effectiveness of at least the corporation and the income tax side of the incentives.

**Ms Churley:** Does anybody in the Ministry of Energy have any comment on the various taxation and other financial measures and tools that can be used to encourage the industry?

**Mr Cecchini:** I think the kind of research we've done has shown that the federal production tax credit in the United States, which I think is about 1.7 cents US, has been a driver for getting new development.

**Ms Churley:** I'm having trouble hearing you.

**Mr Cecchini:** The federal 1.7-cent production tax credit in the US has been somewhat of a driver for getting new renewable development in the United States, especially with regard to wind projects. You'll see the projections there. They kind of go up through to the end of 2001, when the production tax credit is supposed to phase out, though there has been some indication that it may in fact be extended.

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**Ms Churley:** And you've seen a difference, I presume; that there are some state incentives and then there are overriding federal incentives as well?

**Mr Cecchini:** What you'll see is that the states operate differently. The federal one is the production tax credit. The state incentives will be mainly towards things such as renewable portfolio standards where they will essentially create a little ring fence market of things and 1% or 2% of the market will be allocated to certain types of alternative energy. Basically you create a market there where they basically grow to a certain percentage. So it may grow over time.

**Ms Churley:** What examples do we have in Canada where some of these things are happening? Who is ahead of us?

**Mr Cecchini:** I think when you talk about who's ahead of us, you also have to look at where we're at right now. For example, when you're talking about the United States, you're really talking about jurisdictions that are almost solely, or close to 80% to 90%, fossil-based. The reality is that in Ontario right now 25% to 30% of our electricity generation is renewable in one form or another, depending on whether it's made with hydro or it's a biomass or something like that. But since we have a large hydro component, we have more renewable electricity than the comparable jurisdictions in the United States.

I guess what I'm trying to say is that when you're looking at the United States jurisdictions, you have to look at where they're starting from compared to where we're at at the present time.

**Mr Jennings:** If you want to look at wind, Quebec and Alberta both have a bit more development than us, but I think it's partly that they have more desirable wind locations. That's one of the reasons why they've got more developed than we have.

**Ms Churley:** Do you have evidence of that?

**Mr Jennings:** That their winds are better?

**Ms Churley:** That they have more desirable winds.

**Mr Jennings:** The ones they've developed in Quebec on the Magdalen Islands, which are in the St Lawrence—those are supposed to be one of the best wind regimes in the country. Similarly, in Alberta, if you have a wind chart of Canada, most of that wind development which Alberta has is all in an area that's particularly attractive. Similarly, in the US, it's areas just south of there that are very attractive wind regimes.

**Ms Churley:** But if you look at the map that you provided us with today, it appears that parts of Ontario have extremely good—so I'm not so sure that I can assume that—

**Mr Cecchini:** The map we provided today just shows Ontario in isolation; it doesn't show Ontario in comparison with other jurisdictions in North America. In fact, probably the best winds in North America are those offshore of the ocean, for instance the Quebec development in the Magdalen Islands, or in the prairies close to the mountains.

We received a presentation from CERA and they mentioned that the Niagara Falls of winds are located generally in the areas of South and North Dakota. You see that the best winds on that map are along the Great Lakes. If you note the text, it says Ontario has marginally good winds. We never say anywhere that they are the best winds in North America.

**Ms Churley:** But does that then mean—

**The Chair:** We're going to have to move on to the government side. We'll be back.

**Mr Ouellette,** do you want to continue?

**Mr Ouellette:** No, I think I'm—

**The Chair:** Mr Hastings?

**Mr Hastings:** I guess my first question would go to the finance ministry people regarding your submission about tax incentives versus retail tax exemptions or what have you and all that stuff. Would it be possible for you people to produce for us a cost-benefit study of the advantages or the results thus far from other jurisdictions of all these things that are going on, whether they be tax credits versus a direct subsidy or grant, and I guess an overarching philosophy of whether a direct subsidy or grant for a particular alternative fuel is the way to go in terms of producing the results that the program in the jurisdiction was looking for?

In other words, I'd be interested in knowing where the comparators are of a market-based approach to this stuff versus a more traditional grant-subsidy approach, which seems to be including our own government—much less, I think, but it seems to be the tendency across North America at least, and probably in Europe as well, that you give some sort of subsidy or grant—"tax credit" gets pretty close to it—in all these activities. Would it be possible in the next few months for your group to create and look at what we're up against in terms of trying to help alternative fuels get more thrust and get into the economy?

**Mr Deutscher:** I shouldn't try to speak for, to commit, the ministry, but it would be a complicated and data-intensive task to do properly.

One time I would think grants and direct expenditures might be more appropriate than tax-based policies would be when there really isn't a market already in existence for a new technology. There have to be buyers out there to respond to the tax incentives before a general reduction for a particular benign type of energy, say, is feasible. In cases where you're trying to focus on very specific types of innovation, sometimes it may be that expenditures or grants would be appropriate.

**Mr Hastings:** OK. Correct me if I'm wrong: do we not have an exploration expense related to mineral developments in Ontario, similarly structured to the Canadian carbon exploration expense for oil and natural gas?

**Ms Langleben:** We parallel the federal system for a large part of our corporation tax. On the specific question—your question was whether in Ontario we parallel the Canadian renewable and conservation expense—I can't give you a definitive answer. I'm sure we do. Could



I just check on that and get back to you? But I'm sure we do.

**Mr Hastings:** OK. A follow-up question that doesn't really need an answer but could be part of the study: companies that are already in this field, whether they be hydrogen or wind or methanol-ethanol, tell me that some sort of market-based approach is required to give them a real liftoff. In conversations, the flow-through share arrangement, although not specifically recommended, is one that appeared to have some kind of favourable response from many of these players. I wonder if we should look at that in terms of how successful it's been in the fossil-fuel-based energy economy.

**Ms Langleben:** We can certainly take that back for consideration.

**Mr Hastings:** OK. My next question, I guess, would be to anybody making a presentation today. We're all saying Ontario is a vulnerable province in terms of most of our energy coming from carbon, whether natural gas or oil, and that alternative energies are about 1% or 2% or less right now, when you look at any of the graphs in any of your presentations. To what extent do any of you think we should be creating some sort of specific alternative fuel usage to make us less vulnerable: 5%, 4%, 10% over a certain number of years? Has any thought been given to that kind of target?

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**Mr Jennings:** In terms of your comment, the percentages were dependent on non-carbon sources. If you actually add hydroelectric, which is sort of traditional but obviously non-carbon, and nuclear, together with the small amount of the renewable that's non-hydro, that's about 30%. In terms of Ontario's vulnerability compared to some other jurisdictions, it probably would be a bit less dependent overall in terms of our amount we're dependent on carbon sources.

In terms of the setting of a specific target, I guess there will be environmental groups that may speak to that which will appear here in the next week or so. I guess one of the questions if one were to chose to do that would be to say, "What target would you set and how would you go about setting that and who would have to bear the burden of meeting that target?" Those would all be things that you would have to consider.

**Mr Hastings:** There would have to be an obvious linkage to tax policy of alternative fuels, whatever combination you would use, I would think.

I have another question of energy, science and tech. One of the gentlemen said that geothermal is not a viable option, and probably in terms of Iceland it isn't, but would it not be an appropriate one to look at in terms of localized geothermal, particularly the traditional heat pump, which was a major thing about 10 years ago, 20 years ago certainly, with the old energy prices? Should we look at it in that context?

**Mr Jennings:** A ground source heat pump—again, there was a lot of work done when there was more concern about fossil fuel prices than there has been until recently, so maybe that's something that could be looked

at again. Certainly it's a viable technology. You just have to go down to a certain level under the ground and you can make use of the constant temperature there. It is, depending on the relative energy prices, commercially a viable technology. When electricity was being more promoted as a heating source there was a lot of work in that area, but I think that hasn't been done as much lately. That's something that could be a very efficient way of using energy.

**Mr Hastings:** To what extent in all of these alternative energies should we be looking at what the consequences are when you take an industry or residence or whatever the facility is off grid and you make it more reliant on that alternative fuel, whether it be solar or wind or what have you? Do we not have a problem we have to look at in terms of the negative credits with the major utility suppliers and we're not doing that yet?

**Mr Jennings:** With a distributed generation, particularly when it first starts out, what it does is it displaces the need to build new versus transmission capacity. It would displace the need to retrofit or extend the distribution system. So in fact it would potentially initially defer costs. I guess over time you could say it could lead to more stranded costs if you have a distribution system which is built to handle a certain amount of electricity and it's using less, so obviously the costs of distribution would go up. That is a potential issue. You would obviously have to change how you're pricing distribution. Now, in the open, competitive market, the distributor will be able to recover their costs and it won't be just dependent on through-put. So each cost per kilowatt hour of distribution will go up if you have more distributed generation, but I think that would be a longer-term issue. In the near term what it does is it defers the need for investment in distribution and transmission.

**Mr Hastings:** I think it's getting pretty close to it right now as you take people off grid for alternative energy.

**The Vice-Chair (Mrs Marie Bountrogianni):** If we could wind down this question because it's the official opposition's turn. Do you want to respond to that last comment?

**Mr Jennings:** Just that there will be both. There will be some cases where you're stranding assets and some cases where you defer large investments you would otherwise have to make.

**The Vice-Chair:** It's now the turn of the official opposition. Mr Parsons or Mr Bradley, do you have a question?

**Mr Bradley:** I think Mr Parsons was next.

**Mr Parsons:** I'm just curious. Back to energy, science and technology, you've gone through the various sources of electricity generation and you've noted there is still potential in hydro. The reaction I get out of the general public is that hydro-generated electricity is viewed by them as the most favourable. I've even been approached by groups that are opposed to wind generation. But for some reason hydro seems to be viewed as fairly innocuous, and yet there's still some potential. Why was that potential not exploited before you went to coal or

you went to nuclear? I'm curious why we didn't fully develop all of the water we could.

**Mr Jennings:** Again it's economics, so the smaller scale—particularly up to the early 1950s, when we first introduced coal, all the large-scale hydroelectric, such as the Niagara River and the St Lawrence, the Mattagami, those large ones, were all dealt with and then it was a question of whether you could develop your smaller resources. The economics of a hydro project depend on how much water you're flowing and how big a draw. Depending on what the price of energy is, some of those are economical developments and some of them aren't. They can change if the price of power goes up. I think the first move to coal was that there was a need seen for large-scale projects, and certainly the view then was that there are big economies of scale. So they were developed, and then later on nuclear.

One of the things in terms of moving to a restructured market is the view that now those economies of scale aren't as important any more, so that smaller-scale generation such as cogeneration or smaller-scale hydro is more viable based on fuel and other conditions. It's really a matter of relative economics. Those are now more viable than they were then.

**Mr Parsons:** Where you've noted that there are 200 to 300—is it megawatts, MW?

**Mr Jennings:** Megawatts.

**Mr Parsons:** —200 to 300 megawatts still feasible, is that feasible at this time or does the price of electricity need to rise to make that feasible?

**Mr Jennings:** I think those are estimates by the Waterpower Association of what is viable right now.

**Mr Cecchini:** Actually, what they say is viable under certain conditions; they will be able to speak to those estimates on Wednesday. What I think they will tell you is that depending on the price at the particular moment in time, access to transmission is also a really important factor in what gets developed and what doesn't get developed.

**Mr Parsons:** Back to the Ministry of Finance. Talking in your presentation about corporate tax policies to encourage alternative fuel energy, has consideration been given to a similar sort of approach to non-corporate, for people to purchase a more energy-efficient automobile than their 10-year-old one, to insulate their house, to change to natural gas? Has there been any consideration to extending the tax policies to everyone to reduce fuel consumption?

**Mr Deutscher:** I'm not aware of specific proposals that have been on the table in at least the recent past. Certainly in days gone by during different episodes of high energy prices there have been considerations for different measures through the personal income tax system. Typically Ontario, I think it's safe to say, has used its retail sales tax as a vehicle when it wants to encourage particular types of consumption.

**Mr Parsons:** But there have been no initiatives in that area for quite some time now?

**Mr Deutscher:** I'll have Ann again come to the table. We have had the one in the retail sales tax for the electric hybrid vehicles.

**Ms Langleben:** Yes, that's the only one.

**Mr Deutscher:** Not in the personal income tax stream.

**Mr Parsons:** I've seen some jurisdictions in the US actually give incentives to trade up from a 15-year-old vehicle to a newer one.

**Mr Deutscher:** That's right.

**Mr Bradley:** To the Ministry of Energy, again. In terms of energy conservation—because I have a feeling we're going to end up dealing in this committee with a lot of alternative fuels and not putting the emphasis on energy conservation, which is necessary, though I stand to be surprised at the end of the exercise—what pressure is the Ontario Ministry of Energy applying to automobile manufacturers to ensure two things: (1) that the SUVs and small trucks they produce are more energy efficient, and (2), and I guess this goes to the Ministry of Environment, although Energy may answer it, to put the same emission equipment on small trucks and SUVs that we find on other automobiles? What is the stance and how much pressure are you putting on, or are you on the sidelines on this one?

1510

**Mr Jennings:** With respect to vehicle efficiency, of course the automobile market is integrated in North America. So the US, which had corporate average fuel efficiency standards that they put in place in the 1970s, is looking at expanding those to include SUVs and minivans, and I think the federal government here has announced they would go along with that. Certainly we would be supportive of moves along those lines in the US in terms of improving efficiency. Those contributed greatly to a big reduction in the use of gasoline in fleets in the US in the 1970s. In terms of the ability of Ontario on its own, I think that is seen as being under the federal jurisdiction, if the federal government did match the US ones. But I think the key to progress in that area is for the US to be doing it and for us to harmonize with the US and perhaps for Canada to engage the US in doing that.

**Mr Bradley:** It's always interesting to see that. However, there's one state in the US—and I recognize the size of that state is as large as Canada in terms of its population—and I could never figure out, outside of perhaps climatic conditions, why in California they could pass a law saying, "You're going to produce vehicles with these emissions standards or you're not selling them in California." Yet in Canada, which is as large, or Ontario, which probably has 11.7 million people now, why, if the manufacturers can produce vehicles with those stipulations both in terms of energy efficiency and emission standards for the state of California, can't they produce them for Canada or for Ontario?

**Mr Jennings:** As you noted, California itself is a market bigger than Canada, and they have had, particularly in terms of local air quality issues, an incentive for proceeding down that line. I know they have put in



requirements in terms of zero-emission vehicles. While they have been very successful in driving the industry, they've had to move those back. Initially they were going to bring that in in 1998. They've moved that to 2001, and I think they've moved that forward. So in terms of actually implementing it, there have been some delays. In terms of the CAFE standards, the efficiency standards, I think they have stayed the same as the federal one. I don't think they have adopted their own. The CAFE one, of course, is the whole fleet mix. The fleet you sell has to be a certain standard. I don't think they've gone beyond what the federal government did in that. That's issue is revisited from time to time in the US, and certainly the auto industry has been resistant to them moving down. But it's an example of a regulation that clearly was very successful in achieving what it did in the 1970s and early 1980s. They have chosen not to go further with it, but right now there is a view to adding SUVs and minivans, which I think is very important, given they're now about half the vehicle sales.

**The Vice-Chair:** It's now the turn of the third party.

**Ms Churley:** Madam Chair, forgive me if I'm asking a question that maybe we have an answer to somewhere in these papers. I feel this has been a very interesting conversation today, having so many people from different ministries here. It's the first time I've been in a room with people from so many different ministries talking about energy.

**Mr Bradley:** Weren't you in the cabinet?

**Ms Churley:** We used to talk about the environment a lot, but in fact the connections that are being made now between energy and energy conservation and consumption and our health have become even more—we're much more aware of it today, which leads me to my question. If it is here, then just tell me where to find it.

I'm just wondering what the coordination is between all the ministries, especially now that we have this committee. I'm hoping we're going to come out with big, bold recommendations we can move forward quickly on and that it isn't a report that takes forever to start implementing. I know there are some really good people in so many of the ministries. I know that Jill Pritchard-Scott is here, who is just excellent. She's with the electricity restructuring office at energy, science and technology. I've spoken to her before. I know there are others in other ministries who have particular expertise in certain areas who couldn't all come to the table today.

Before I get to the question, I wouldn't mind if there was a way that maybe the subcommittee could work somebody in from the Ministry of Municipal Affairs and Housing to come and talk to us about retrofitting and the building code. You will notice that a major part of what I will be talking about is tax incentives and other instruments. Conservation and efficiency are my two main areas of interest, and I feel we need more work and more information in those two areas. First of all, I would like the opportunity to have somebody from municipal affairs and housing come and talk about that. I don't know if there can be a list provided or something to let us know

about the experts in different fields in different ministries around some of these issues, and if there's going to be some kind of committee from the ministries working at the same time the committee is, so we don't end up coming up with a bunch of recommendations and then the work beginning, but that some work is happening in the meantime. That's a statement and a question.

**The Vice-Chair:** I just consulted briefly with the clerk, and we will refer that to the subcommittee. Do you have a question?

**Ms Churley:** No, unless anybody wants to comment on that.

**The Vice-Chair:** Are you giving up your time, then?

**Ms Churley:** Yes.

**The Vice-Chair:** The government side?

**Mr Gilchrist:** Thank you, lady and gentlemen, for the presentation. I think we've learned an awful lot today. It's been a good starting point for us. I think there are a few gaps in some of the presentations which, with your indulgence, perhaps you could get back to the committee on if you don't have the answers today.

First, in the Ministry of Energy, Science and Technology presentation, you note, in one of your slides, alternative fuels used to serve homes, but the terminology is kind of loose. Do you mean "fully meet the needs of that number of homes" or "are equipped and the shortfall is made up elsewhere"? Perhaps you've got a quick answer to that one.

**Mr Cecchini:** What we are showing there—I think you're referring to page—

**Mr Gilchrist:** Are you referring to equivalency, or are you talking about people actually, physically hooked up to—

**Mr Cecchini:** No, that's equivalency. That's essentially to give you an example of how many homes would be heated by alternative power.

**Mr Gilchrist:** Like Mr Bradley, I too have a lot of questions about Beck III. Perhaps while we wait for OPG's presentation later this week, you'd be kind enough to supply us with any studies in the hands of the ministry showing the status of the Beck III application, which was pursued at one point, and the ministry's considered opinion. We'll deal with OPG as to the financial justification, but I'd like to know the ministry's scientific perception of that.

I wonder if you could get back to us with an expectation, in tangible terms, of the impact of the 10th and 11th regulations you've outlined; a list of the innovation trust projects that may have any bearing on alternative fuels; are there any international science and tech agreements with alternative fuel connections of any kind; the funding for biotech centres, again, is there any applicability to alternative fuels so far and, if so, the status of any projects?

1520

One other specific question: I was approached by a gentlemen with an additive for diesel fuel that would allow the use of ethanol to be mixed with it. He has discovered that apparently no one in Ontario has a

facility to test diesel fuel additives. I wonder if the ministry or any other ministry—MTO refers at one point to diesel additives—has knowledge of any of the oil companies or anyone in perhaps one of the universities who has the ability to do actual bench testing for diesel fuel additives. Apparently there are lots for gasoline but none for diesel. I would be grateful for that feedback.

A couple of policy issues: first, why would we not require—not allow, but require—peak/non-peak pricing for all customers after the market is deregulated? Secondly, understanding the extraordinary losses that occur when you try and move electricity through wires over long distances, and when we talk about possible wind or any other projects in the northern parts of the province in particular, why, as a matter of policy, would we not expect them to be for local needs only, and not get into any kind of con job that there is going to be a realistic payback? As per Mr Ouellete's question, if you go putting something on the other side of Moosonee, you're not going to get enough energy back down to Timmins to turn on your Christmas lights.

To the Ministry of the Environment: you note that EA requirements were waived for small wind farms. Can you tell me how small? What's the cut-off?

**Mr Rockingham:** There are three classes in the environmental assessment regulation changes. For wind power under two megawatts—let me check my numbers on that. Yes, if you're under two megawatts, then you do not need to submit either a screening report or an environmental assessment. If you're greater than two megawatts, then you have to undergo a screening process.

**Mr Gilchrist:** I wonder if you could supply the technical justification for regulation 232/98 being applied with a cut-off of landfill sites greater than 250-million-tonnes capacity. I'm sure you've got some science somewhere that tells you that there is a certain amount of methane being produced and—

**Mr Rockingham:** There was a correction. There was a typo in that slide. I'm sorry, sir, it's 2.5 million.

**Mr Gilchrist:** I beg your pardon. It struck me as extraordinarily high. I missed that in your presentation.

Your slide 6 says that you have no studies on incineration of waste for energy. I find that quite remarkable. Is that accurate? The Ministry of the Environment has never looked at the issue of burning municipal waste or corporate waste for the recovery of energy?

**Mr Rockingham:** I think the slide is more specific than that, or at least we were trying to be. We thought your question was about the potential for energy from waste in terms of the overall potential across Ontario. Certainly there have been a variety of studies submitted to us for particular energy-from-waste facilities. For example, there are energy-from-waste facilities in operation right now, so we know the operation of those and could provide some information to the committee, if that's helpful, about those sites.

**Mr Gilchrist:** That would be very useful. I am told the city of Toronto throws out enough garbage to create enough electricity to run Guelph.

I am concerned about the report we've heard this week that the ministry has apparently moved away from posting sulphur level contents at the pump. Obviously, the work of the committee, operating at a very high level, isn't going to mean anything if individual consumers are not educated as to the merits of making alternative purchasing decisions. I wonder if you would be kind enough, if not today, to get back to the committee with the very specific rationale for why we would do anything less than making sure the purchaser, at the point of purchase, understands the product he or she is about to buy. We do it on a myriad of other products for far less significant reasons. I would think the packaging, in this sense, of gasoline, and the import in terms of health consequences is something that every single consumer should know. That's a personal opinion, but I would like to know why the ministry is not leaning in that direction.

Also, I wonder if the Ministry of the Environment could supply any information they have on the Beck III project, whether it has gone through, and what would be expected in terms of environmental assessment? If not, what steps are remaining?

Finally, to the folks at finance, along the lines of what—I think it was John who asked the question of analysis of tax policy; not so much a comparison elsewhere but recognizing that in many cases we're talking tax revenue on industries that don't exist, if we were comparing the status quo today with potential developments in the future. I'm going to ask you to supply the specific dollar amounts that the province would lose if it waived all taxes on all aspects of the production, manufacture, distribution and sale of all forms of alternative fuels that have been discussed here today. For example, what would we lose if we waived the 4.3 cents on propane, if we waived that reduced charge? Recognizing that there aren't enough photovoltaic cells sold to matter, my guess is that you're going to come back with a pretty small number. So you might anticipate, looking down the road, that there would be forgone income, but I'd like to know what the actual lost dollars would be today if we had no tax on anybody making, distributing or selling a wind turbine or photovoltaic cells or propane or any of the other technologies referred to here today.

Mr Chair, might I ask you if at the end you could allow a couple of minutes for us to pose questions to research as well?

**The Chair:** Sure. No problem. Your 10 minutes are just about up now, so we'll move along.

I would just make a comment on Ms Churley's question or statement earlier. The subcommittee did ask that each ministry—and it was in the letter to them—designate a person in their ministry as more of a contact person, and that might be used as a bureaucracy or staff committee and it might be something that could go into an interim report. I think your point was well taken. I know there was no response from the staff who are here, but I just didn't want that one to drop. The subcommittee was looking for these point people so there is a contact. Maybe there is another ministry or two that should be



involved. This was the number that the subcommittee felt at the time would be in order to be invited to this meeting.

**Ms Churley:** Could I ask, though, in particular housing and municipal affairs, if the committee would agree. I don't even know if we need to take that to the subcommittee. Because of the energy retrofit, I think we do need to hear from them.

**The Chair:** I think your point was well taken. To the official opposition, any further questions? You'll pass? Ms Churley, do you have anything further? I wonder if the Chair might be allowed to ask a couple of questions.

**Mr Hastings:** Go ahead.

**The Chair:** The biomass being used, like cellulose, to create alcohol versus creating methane: which would be the more efficient in energy production for the use, decomposing it to create methane gas or fermenting it to create alcohol? That's a technical type of—

**Mr Malcolmson:** I'm going to introduce Bill Baxter.

**Mr Bill Baxter:** Bill Baxter from agriculture, food and rural affairs. In terms of dollars, I don't think we have those numbers. In terms of environmental impact, the evidence would seem to be that the utilization of corn stalks and straw to make ethanol has a far greater environmental impact. The economics of conversion of methane gas or biogas into electricity certainly have not been clarified at this point.

**The Chair:** The other one is to transportation. I know it's not exactly Ontario's role, but we talk about the percentage in transportation and we seem to leave out air travel. What percentage of greenhouse gases or other pollutants compared to other transportation comes from air travel or use of aircraft?

1530

**Mr Topaloglu:** These are documented. We have numbers for that. It depends on whether you talk about local or domestic air travel versus international air transport. Domestic air travel is significantly lower in its emissions than international. It's a small percentage. I dare not—

**The Chair:** Maybe it's something you could submit to the committee.

**Mr Topaloglu:** It's a few percentage points of the total but it is increasing. Especially the greenhouse gas emissions from air travel are increasing.

**The Chair:** And most would be at time of takeoff.

**Mr Topaloglu:** Certainly it is more intensive during the time of takeoff. The energy consumption is higher at that point in time.

**The Chair:** Thanks, committee, for the opportunity. Mr Hastings, did you have your hand up, or Mr Ouellette?

**Mr Hastings:** There are a couple of things I think we should look at in terms of the whole approach of this committee, and one of them would involve getting Management Board Secretariat here. In many state governments, in Washington and Ottawa and British Columbia, we have demonstration projects going on in a number of areas, but particularly related to hydrogen applications. I'm wondering if we could add to your list

and get a person from Management Board who is responsible for the development of RFPs and all that kind of stuff in the delivery of vehicles for the fleet. I can think of a whole number of other applications, but I think we need to hear from somebody from that particular area as to the potential for inserting alternative fuels in RFPs.

The other thing I'd like to know is, how would ag and food, in their study of ethanol, methanol and the whole distribution, go about creating a sufficient critical mass—and you don't need to give me an answer today—that could be effective in the blending of fuels in this province, given what is happening in California, where they buy their product offshore—their corn and other related grains—rather than in the United States?

Finally, I would like to know what environment—or across all the ministries—thinks about what are the benefits and disincentives of a mandate. Again, in California you have a hydrogen fuel partnership, where they're going to require by 2005, I believe, that 30% of their manufactured vehicles—cars, essentially—have a hydrogen component or a fuel cell, some combination thereof. Is there a significant economic disadvantage in having a mandate when you go that route? There's a sort of tax implication as well, I would think, for tax policy in that area.

**Mr Ouellette:** To the Ministry of Transportation: California is currently considering a ban on all two-stroke engines. Have you looked at or thought of what the economic impact would be of banning all two-stroke engines in Ontario for manufacturers, or anybody, for that matter, and possible substitutes for them?

**Mr Topaloglu:** We have not looked at banning two-stroke engines, but two-stroke engines are primarily used in off-road applications. They have more or less disappeared from the road application. There are a significant number of off-roads engines, but they are in—

**Mr Ouellette:** Another question would be that recently one of the European car manufacturers announced a vehicle that had, while it was mobile, converted ground-level ozone. Do you have any knowledge or information about it that can be passed on?

**Mr Topaloglu:** No. I don't have any direct knowledge of that.

**Mr Rockingham:** Perhaps I can just comment on that. I saw the ads myself. Volvo had an ad which indicated that it actually absorbed ozone. We looked into that. As far as we could tell, there were no specific chemicals or anything added to the engine. It is true, however, that any moving object that comes in contact with ozone will take some of that ozone out of the atmosphere. I'm afraid we didn't do the in-depth research, but certainly at first blush it looks as though they are just observing what a lot of cars will do.

**Mr Ouellette:** For the Ministry of Ag and Food: you mention about the ethanol. I'm not sure whether it was there or I just missed it, but what percentage does Ontario produce? Do we produce everything that we use here? Do we export? Do we have to import to fulfill our demands? Do we know those figures?

**Mr Linington:** We import a little bit. I'm not sure of the figures right off the top of my head, but we produce somewhere around 150 out in Chatham and about 23 out of Tiverton, so that gets us up to 175. And we're somewhere over 250 in mean consumption, so we import.

**Mr Ouellette:** When using ethanol, are there other additives required for proper combustion? I can't remember the exact—MMTH, is that the correct—

**Mr Linington:** MTBE.

**Mr Ouellette:** MTBE, yes. So when you're using ethanol, do you have to have another additive like that in order to get proper combustion?

**Mr Linington:** You probably need somebody with a science background, not in gas but probably in diesel.

**Mr Topaloglu:** You don't need any additives added to ethanol for its proper combustion. With methanol you would need some additives to allow it not to separate from water and to improve the startability etc of the engine, but with ethanol, especially in those lower percentages, you would not need any other additives.

**Mr Ouellette:** Energy, science and technology: at the deep mines in Timmins, one of the problems they're having right now is cooling the lower shafts. Has anything been looked at in utilizing that energy? Because they're so deep or close to the earth's core or the mantle, I believe the temperatures—and I can't quote the exact figures—are over 125 degrees Fahrenheit. Has anybody looked at utilizing that energy in any way, shape or form at all?

**Mr Jennings:** I'm not aware of anyone having done a study on the use of that energy. Again, we talked about ground source heat pumps. That would be a way of doing it. You'd have to look at depth and the cost of doing that and what the actual return would be.

**Mr Ouellette:** Two other questions. It was mentioned that some of the US jurisdictions had tax incentives for infrastructure to supply fuel for vehicles. When I met with Maureen Kempston Darkes from General Motors, her position was that the major car companies can produce environmentally friendly vehicles within a very short period of time, being a year or two years to convert the plants over. The difficulty was the infrastructure and training in order to service all these vehicles and to recharge. Is there any movement out there, any incentives within any of the ministries to encourage the infrastructure development necessary to bring these new vehicles on line? I guess not.

One other thing to MNR: can we get a listing of all the water retention dams, whether they're MNR-controlled or conservation-authority-controlled, that can be submitted to the committee, just so we can get the number of them found throughout the province of Ontario?

**Mr de Launay:** Sure.

**Mr Gilchrist:** To our folks in transportation, a couple of things. Again, looking at your slide 10, could you share with us at your earliest convenience what you know about the issue of diesel fuel being blended with ethanol and the range of options that are out there right now in

terms of additive packages that would allow that to happen?

Also, I'm really struck by something in slide number 5. Despite the dramatic increase in transportation activity, in terms of non-greenhouse gases, there's actually less pollution out there today than there was in 1970. I'm sure anybody who's ever followed a 1970 Dodge Dart would probably agree with you implicitly that this is the case when compared with a car on the road today. Would you be kind enough to supply whatever study substantiates that comment?

Speaking of studies, this really cuts to the heart of what I think we're going to be struggling with over the next couple of months, and that's going to be competing claims and almost a need to become an instant expert on a wide range of different technologies. We're going to have difficulty coming to grips with any one or two, never mind eight or 10, in the time frame.

**1540**

Today we've received your presentation from transportation. Also, the clerk has distributed a letter from Enbridge. In that package—I'm not going to put you on the spot by asking you to interpret or decide the veracity—they claim it was Natural Resources Canada that has done modelling of full life-cycle pollutant emissions for fleet average 2001 model year vehicles. When I look at their chart, there is a staggering difference in some categories, by a factor of 100%, in the claimed output: VOCs, particulates and in particular carbon monoxide. You quote the Report to the Transportation Issue Table of the National Climate Change Process (1999).

I guess my question to you is, who's right, and how do we get our heads around the definitive answer, comparing apples to apples—same model year, same consideration of the full life-cycle costs? Who has the best, most up-to-date science that's presented in a way that is unbiased and that we can accept at face value when coming to whatever conclusions we arrive at in terms of comparing different technologies?

**Mr Topaloglu:** I would have to see the report you're referring to. I can only tell you that this study was managed by a committee of industry and government as well as non-government organizations. It had the representation of all parties who overlooked the work, and these are the numbers. I should tell you, however, that these numbers apply to the year 2010. They do not apply to today's vehicles. It's a bit of an estimation that we have gone through. We would not be able to tell that this applies to a specific model or a specific vehicle. These are, if you wish, estimates that would apply to the entire fleet of vehicles manufactured around that time frame.

**Mr Gilchrist:** But presumably that consideration embodied known announcements of product improvements, particularly sulphur reduction that's been mandated. In many cases in that chart it's still showing higher amounts than the chart showing 2001. I guess my question to you, phrased a different way, is, if you're comfortable that that group cobbled together the definitive study of where we will be in terms of pollution from a variety of fuel



sources, then that's fine. That's your position, and we'll respect that. On the other hand, if there are American studies, if there are international studies, if there is any other source to which we should be referring to at least try to develop our own synopsis of the various opinions out there, I would appreciate any leads you could give us.

**Mr Topaloglu:** Certainly. There's no claim that this is a definitive study of any kind. There are many studies out there. This is one of those studies. I can only tell you how it was conducted. All these studies invariably involve estimates, especially when you're trying to guess what might happen in 2010.

**Mr Gilchrist:** Then let me, as my final point, say that if you or we have to wrestle with inconsistencies because this is a forecast as opposed to an assessment of today's reality, I would be grateful if you could find whatever other up-to-date reports there are judging the current quality of gasoline and propane and natural gas operated in the current cars on the market. From that, hopefully, we will be able to develop a realistic model showing where there are potential benefits to alter consumer behaviour.

**The Chair:** I see Mr Hastings waving his hand. I think he has another question.

**Mr Hastings:** I think Mr Ouellette brought up a very good point when he was talking with the CEO of GM—I found it similarly with a solar energy company this summer—and that is, we don't have anybody here from universities, colleges and training. We need a contact person, I think, for the planning and development of the skills required for what the CEO from GM was talking about. In the solar there certainly isn't a group of people looking at the training you require when you go off peak or off the main utility grid for another alternative fuel, certainly in the case of solar, and it could probably apply to others. So we're missing that essential link. I think that's one group, that somebody from that ministry had better get involved in this exercise at some point.

**The Chair:** Thank you very much, Mr Hastings. Good point. I'm beginning to think it might be easier to name

the ministries we don't need to have involved than to name the ministries to have involved. But it's interesting how it's evolving and how it seems to reach into almost every ministry, at least a large number of the ministries that we have with the provincial government.

I believe a spokesperson from the Ministry of Finance has a comment she would like to make. I think she was checking some details and would like to respond with some information before we wind up.

**Ms Langleben:** I just wanted to confirm that Ontario does parallel the Canadian renewable and conservation expenses measure.

**The Chair:** Thank you very much. I think it's amazing. We sort of looked at 4 o'clock, and working toward that point, we're going to get out slightly early; coincidentally, it has come out that way. Thanks ever so much for your presentations today. Stand by for a possible recall. I'm sure that down the road the committee will look for more information from some of the ministries, but you've certainly provided an excellent base for us to start from. It was imperative that we as a committee have an understanding of what's being done in the various ministries in the provincial government. I think we've received that today, particularly with the slide presentation that's going to be great to have in each of our files.

Circulated to the committee was an invitation to be out at Pickering on Wednesday when they cut the ribbon for this very large wind turbine, but I take it for granted we'll have to send our regrets, as we've already scheduled activities for this particular committee.

So unless the committee has any other comments at this point in time, just for the committee, don't forget to be at the legislative steps at 5:30 sharp. At that time we'll be taking taxis to the Toronto Island Airport for our flight to Ottawa.

The committee now stands adjourned. We'll reconvene tomorrow at 8:30 am at the Ottawa Marriott.

*The committee adjourned at 1:54p.*







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Deuxième session, 37<sup>e</sup> législature

# Official Report of Debates (Hansard)

Tuesday 28 August 2001

# Journal des débats (Hansard)

Mardi 28 août 2001

Select committee on  
alternative fuel sources

Comité spécial des sources  
de carburants de remplacement



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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Tuesday 28 August 2001

Mardi 28 août 2001

*The committee met at 0835 in the Marriott Hotel, Ottawa.*

ENVIRONMENT CANADA  
NATURAL RESOURCES CANADA

**The Chair (Mr Doug Galt):** I will call the select committee on alternative fuel sources to order here in Ottawa. I think we have most of our committee here; there are a few yet to come.

The first delegation to present is Environment Canada and Natural Resources Canada, a joint presentation. I believe there was some discussion about timing. Possibly we could look at a half-hour for that combined presentation.

**Mr Richard Godin:** My name is Richard Godin. I'm with Natural Resources Canada. I act as senior adviser for renewable energy policy. I'd like to introduce my colleague, Mr Leslie Welsh, who is head of sustainable energy at Environment Canada.

Our topic is emerging renewable energy sources, and there will be a separate presentation on the topic of alternative transportation fuel from a colleague of mine at Natural Resources Canada.

Our presentation will cover four points. First we'll touch briefly on the definition of what is renewable energy, what is alternative energy; second, a bit of policy consideration on why the federal government cares about renewable energy; third, we'll go through our list of actual programs and initiatives; and we'll conclude by outlining areas of co-operation.

With respect to definition, renewable energy can be defined as several energy sources that can all produce usable energy without necessarily depleting resources. So we're talking about energy sources such as moving water, biomass—living matter like wood, corn—the wind, the sun and even the earth itself as an energy source. These sources, using a wide range of technology, can produce energy that can compete in different markets, such as the electricity generation market, the space and water heating and cooling market, the transportation market and even mechanical power.

When discussing energy policy matters, the expressions "renewable energy" and "alternative energy" are often used together. In slide 4 on page 2—you have copies of the presentation in front of you—we've tried to

express the difference between the two, between renewable energy and alternative energy.

The circle on the left is renewable energy, and essentially, from a policy perspective, we differentiate renewable energy into two; that is, conventional renewable energy and emerging renewable energy, which is the topic of our presentation this morning.

In Canada, conventional renewable energy sources include hydroelectricity, which is well established and the leading form of electricity generation in Canada, and, as well, the combustion of round wood or wood waste using conventional combustion technologies.

The second type of renewable energy, the one in the middle of the two circles, is emerging renewable energy. It could be roughly defined as sources that are present in the marketplace, have a promising future but still face significant barriers to widespread use. In Canada, these emerging sources include wind power, solar power—either to produce electricity or heat—geothermal energy and various forms of bioenergy. By "bioenergy" we mean energy from biomass such as the combustion of wood, but it also includes the production of ethanol from corn or other biomass sources, as well as the use of urban waste and methane from landfill sites.

**0840**

These emerging renewable sources are considered, from a policy perspective, to be alternative energy. That's why in the diagram they are at the intersection of the two circles, because they can compete in the marketplace against conventional, well-established sources.

Also included as alternative energies are some non-renewable energy sources. From a policy perspective, these are mostly on the transportation side, so ATFs or alternative transportation fuels. We're talking about natural gas for vehicles, propane for vehicles, ethanol, which in the diagram is in the middle and as a transportation fuel, and hydrogen fuel cell technology. Again, this is the topic of the next presentation.

With respect to policy consideration, why is the federal government interested in emerging renewable energy sources? There are several policy drivers.

First is climate change. You are probably all aware of the 1992 Framework Convention on Climate Change from Rio and then the 1997 Kyoto Protocol. This is a significant policy file in Ottawa.

Second is clean air, which deals with the interaction between the various air emissions and their impact on

human health. There are two benchmark agreements in the clean air file: the Canada-wide standards and the Canada-US clean air agreement.

Finally, another policy driver is the health of the economy. Canadian manufacturers already manufacture quality energy-producing equipment, and their project development know-how is well known in the export market. We feel that emerging renewable energy sources present further employment and export opportunities to Canadians.

I should mention as well that access to abundant, competitively priced energy sources is a long-term objective of Canadian energy policy as a whole. In that context, the deployment of emerging sources of energy will help Canada to meet that objective in the future.

Over the past few years, the government of Canada has made several key statements on emerging renewable energy sources. I have four listed on slide 6 on page 3.

First, in 1996, we released our natural resources renewable energy policy, which presents a framework for intervention to support the development of the renewable energy industry in Canada.

Second, there have been several announcements that have been made through federal budgets in 1996, 1997, 1998 and 2000. Sometimes these statements are to announce measures to help level the tax playing field, which has been an objective of the finance minister over the last few years. At other times, it's to announce discrete climate change initiatives.

Third, last year ministers Goodale and Anderson released the government of Canada Action Plan 2000 on Climate Change, which is the first federal response to the national consultations on the strategy to meet the Kyoto objective. Action Plan 2000 contains several initiatives aimed at emerging renewable energy sources.

Finally, earlier this year the Interim Plan 2001 on Particulate Matter and Ozone was the first federal response to the Canada-wide standards.

Of interest to policy-making is the current momentum that exists in Canada toward the deployment of emerging renewable energy sources. This momentum is driven by several stakeholders.

First, several provincial governments are now expressing a keen interest in renewable energy and emerging renewable energy. In slide 7, I've listed three or four examples: the BC Hydro 10% commitment; the Quebec government looking at a legislated wind set-aside for Hydro Quebec and, finally, the PEI and Saskatchewan governments purchasing wind power for their facilities.

The second group of stakeholders showing interest is the business sector, leading energy companies. Several of these companies joined environmental groups in the Clean Air Renewable Energy Coalition last year. This coalition advocates government incentives toward green power. Also, several of these companies, including Ontario Power Generation, Suncor, Enbridge, TransAlta, to name a few, are making or have announced their intent to make investment, either equity investment or investing in actual projects; for example, the wind farm being built

in Saskatchewan right now is owned jointly by Suncor and Enbridge, and it's the first wind farm, to my knowledge, in Canada owned by a conventional energy company.

The third group that contributes to that momentum are consumers. Consumers are starting to get a chance to express their interest in renewable energy with green power programs being offered or, in some cases, being developed by electric utilities or others in the context of open markets. We list several in there, including OPG, which made an announcement to increase their purchases of green power.

I'll now move to a section of the presentation that lists federal programs and initiatives. On slide 8 we deal with business tax incentives. There are essentially two incentives to encourage business investment in electricity generation from projects such as wind farms, small hydro and biomass combustions. These two incentives actually help level the tax playing field, as other competing energy forms also benefit from other types of tax incentives.

First there's the Canadian renewable and conservation expense—or we call it CRCE. If you hear about CRCE, that's what it is. It's a list of early and tangible project expenses which can be financed through flow-through-share financing. Flow-through-share financing is a measure that existed; before it was available for oil and gas exploration and mining exploration. In 1996 it was extended to emerging renewable energy sources. The second measure is the capital cost allowance class 43.1. The tax system allows for an accelerated write-off of certain generation equipment.

The next slide, on page 9, from the tax system, we're moving to energy, NRCan programs. First, R&D; Natural Resources Canada is first and foremost a science-based department and through our R&D programs we co-fund industry activities to lower the cost and improve performance of technologies.

The second one on the slide here is the renewable energy deployment initiative. Under that initiative, which was introduced in 1998, NRCan implements a host of market development activities. These include market assessment studies, information dissemination, buyer guides on renewable energy systems, an outright marketing campaign to support industry. To help make appropriate decisions, the RETScreen pre-feasibility software was developed by the department and made available widely.

#### 0850

Finally, what the renewable energy deployment initiative is most known for is the REDI incentive, which is a 25% financial rebate for businesses and institutions installing qualifying solar, thermal or biomass heating systems in their facilities. The program has been in existence now for just over three years. With respect to Ontario, we've received 44 applications for the REDI incentive from various businesses and institutions. We've also within the program launched some pilot projects with respect to residential solar hot water systems and we



have two such projects in Ontario, one in Toronto and one with the city of Peterborough.

The next slide, on page 10, is about energy and environmental programs. Essentially these are programs that came from Action Plan 2000. Through government procurement, the federal government will displace its purchases of low-efficiency fossil-fuel-based electricity with purchases of green electricity sources. We had already done three pilots for green power purchases, one in Alberta in 1997-98 and two last year in Saskatchewan and Prince Edward Island. With Action Plan 2000 the federal government now has a commitment to purchase 20% of its power from emerging renewable sources; 20% is more or less our purchases of coal or high-carbon electricity.

Secondly, under Action Plan 2000, the federal government will introduce a market incentive that will be implemented in coordination with those government purchases. It will be a limited financial incentive, and further details are to be announced in the near future.

Finally, we also have an initiative to encourage on-site electricity generation using technology such as solar, photovoltaic, in government buildings. We plan to install a certain number of these systems over the next three years.

The next slide deals with environmental initiatives, and I'll let my colleague from Environment Canada talk to you about that.

**Mr Leslie Welsh:** Good morning. I'm the other half of the environmental/energy dichotomy. So we're showing good co-operation between the two sides of these issues.

One of the initiatives that has taken hold in Canada in the past few years is associated with the environmental choice program, which is the program that Environment Canada started in 1986, intended to provide a market advantage to environmentally beneficial or superior products and services. Since 1996 the environmental choice program has certified and labelled renewable low-impact electricity, sometimes called green power, in support of this developing green power market. This is intended to help assure customers that they are getting what they're paying for and it provides a measure of consumer protection because there's an auditing approach with respect to making sure there's no double counting of supplies against sales of green power.

The Canada-wide standards process, which you may be familiar with, has developed some standards that are intended to be met over time. It has included standards on particulate matter in ozone, that is, smog, and along with the ambient standard is a commitment by federal, provincial and territorial jurisdictions to actions to achieve those standards, and there will be an accountability framework to help do that.

Part of that Canada-wide standards process has also involved what are called joint initial actions, which are intended to kick-start the process a bit. Two of those have themselves involved alternative energy aspects. One of them is the formulation of an electric power generation

multi-pollutant emission reduction strategy and part of that will include consideration of the role that alternative energy sources can play in helping reduce multi-pollution. That strategy will be for the consideration of jurisdictions in adopting their jurisdictional action plans to effect the Canada-wide standard on smog.

Another joint initial action which was committed to by ministers was to look at alternative energy in a broader context and how it can contribute to emission reductions, and to produce a model that could be considered by jurisdictions to advancing alternative energy.

There are some broader programs that the federal government has which impinge upon alternative energy as well as other technologies. The technology early action measures program is intended to help bring climate change technologies to the market. These are technologies that do not require a lot of research but are ready for market deployment and just need a little bit of assistance to be demonstrated. The sustainable development technology fund is a fund that's just getting spun-up this year. Legislation was passed in June. It's a \$100-million fund that's at arm's length from the federal government and is intended to support technologies that will reduce emissions that cause climate change and reduce emissions that affect clean air. Of course, some of those technologies will include alternative energies.

The technology partnerships Canada program of Industry Canada is another program that has been around for a few years. It is intended to help get several different kinds of technologies employed, including environmental technologies, which in turn include some alternative energy technologies. In Budget 2000, two municipal green funds were announced, one of them to support feasibility studies and another to support projects that the municipalities would have an interest in. These funds, amounting to \$125 million, are managed by the Federation of Canadian Municipalities.

We're certainly looking forward to further co-operation between levels of government and we hope that our presentation will help you understand the government of Canada's existing initiatives. We would like to co-operate with the provinces, and with Ontario in particular, with respect to broad policies dealing with climate change and clean air. Such co-operation can occur in specific programs, but we are also interested in just sharing policy and program experiences with our colleagues in the provinces.

This summer we sent a letter to the Ontario Ministry of Energy, Science and Technology to explore the possibility of co-operative approaches with respect to Action Plan 2000, particularly the measures concerning emerging renewables and the electricity procurement and the limited market incentive that is planned. We've had a response from Ontario officials and we anticipate that in the coming months we'll be further exploring possible areas of co-operation.

There are also other opportunities that can be taken to help coordinate such things as electricity labelling. Ontario is very active in moving forward on improved

electricity labelling, the so-called nutritional labelling. As you heard previously, federally we have the environmental trace program which deals with labelling of the green power type of market choices. These programs could benefit by the sharing of information and perhaps coordination.

Thank you very much for the opportunity to present to the committee today. Richard and I would be pleased to answer questions if there's any time and if there are questions you want to pursue.

0900

**The Chair:** There is a third presenter as well?

**Mr Peter Reilly-Roe:** That's correct.

**The Chair:** OK. We have about another 12 minutes or so. Sorry about the misunderstanding about time, but anyway, we're stretching it a fair amount. Go ahead.

**Mr Reilly-Roe:** Thank you, Mr Chairman. My name is Peter Reilly-Roe and I'm from Natural Resources Canada. I'm going to talk about alternative transportation fuels. I actually had a letter addressed to Agriculture Canada and I was responding to that. I didn't get my invitation until yesterday. However, you have a slide deck in front of you that looks something like that, and I'm going to try and cover those topics quickly. I'll go on to the second slide.

We've been involved in supporting alternative transportation fuels since 1981, since the first response to the Arab oil embargo, when we started research and then we started programs as part of the national energy program, the program everyone loves to hate. But we did a lot of good work under that program as well on alternative fuels. In fact, we did a lot of it with Ontario. Ontario has been a major participant with us in promoting alternative fuels over the years. The first objective was to get off oil and diversify energy sources away from petroleum. Alternative fuels have certainly done that.

Federal policy has been fuel-neutral. We haven't picked a winner. We've helped each fuel according to its stage of development, so if it's a fuel cell technology in very early development with no products, we've helped on the research side. If it's something which is nearly economic, there's commercial technology around, we've helped with market incentives and information programs.

The main policy lever the federal government has used over the years has been waiving the excise tax on gasoline, which is now 10 cents per litre. So if you have a propane fuel or a natural gas fuel or ethanol and gasoline, it doesn't pay that 10 cents per litre equivalent. That's a very powerful, strong incentive. The way we've worked with provinces, and particularly Ontario, is that provinces who want to participate in this initiative as well have added their own motor fuel tax waivers to our excise tax waivers. Together that's given a very strong incentive for the alternative fuels. Ontario, for instance, has waived its 14.7 cents per litre tax on natural gas, so it's a very strong lever.

Just quickly going over the programs we have run, we started off in 1981 with a propane program which just offered a fairly small grant of \$400 for conversions, and

it had quite a strong response because energy prices were very high at that time. That helped a lot. We had 70,000 vehicles funded under the program. The total number of vehicles in Canada was about 150,000. A lot of people converted by themselves.

The natural gas vehicle program started in 1983. That program continues today; it is still funded from a special source of funds, and you're going to hear a lot more about that this morning from the Natural Gas Vehicle Alliance.

We also did some work on methanol in large engines and transit buses and trucks, which turned out not to be an economical technology at the time. It had some hardware problems which were eventually solved but made the fuel a difficult one. Methanol also has toxic properties which are problematic in maintaining and servicing vehicles.

We've done a lot of work on hydrogen since the 1980s, and you'll hear a bit more about that later on.

Ethanol is also something we've supported for many years, and particularly since 1993, when ethanol was granted the waiver of the gasoline excise tax. That really helped it a lot. We had a five-year initiative to support fuel ethanol in a number of ways. Agriculture Canada coordinated information and research on agricultural feed stocks and there has been a lot of work on cellulosic ethanol research in our department. In 1996, the national biomass ethanol program was implemented by Agriculture Canada to help new plants secure financing for their investment. The Chatham plant of commercial alcohols was the first major plant to be assisted under that program. R&D on cellulosic ethanol continues, and Iogen is the major recipient of that work.

Just last year, Action Plan 2000, our response to climate change to meet the Kyoto goal, had five transportation initiatives, of which two are fuel-related. One is a fuel cell alliance, and the other one is a future fuels program for ethanol. The ethanol program has not yet been announced in detail, but I can tell you broadly that it reproduces the national biomass ethanol program that was successful in the mid-1990s, and it does it on quite a bit larger scale. We hope to be able to increase production capacity of ethanol about four times from its current level, so the total production in Canada should be around one billion litres by the late part of this decade. That will assist about 27% of all gasoline to contain ethanol blends.

On the fuel cells, that program has been announced, a \$23-million program over five years. We hope to lever twice that much from participants. Its intention is to take fuel cell vehicles and put them out into commercial service with a variety of refueling station technologies so we can learn what works and what doesn't work and we can put standards in place and training for people to operate them and help that market along.

Because of the lack of time, I'll leave you with the deck. It just goes through parts of the program there, but it has demonstrations and technical facets. The participants are listed there. There are four provincial govern-



ments, Ontario being one because there's a lot of activity in fuel cells in Ontario, and companies like Stuart Energy, for instance.

Flipping now to slide 10, there's a list there of alternative fuel projects we have had or that are current with companies in Ontario. You will see a list of them there.

The last thing I should probably point to is why we are interested in this at all now. The reason is that greenhouse gas emission possibilities of alternative fuels are varied but quite significant. If you look at this chart here, it shows the different greenhouse gas emission indications of fuels, starting off on the left with conventional gasoline, which is approaching 500 grams per mile. You see that natural gas has about 25% less, propane about 20% less, and various other ones. The interesting one there is ethanol from corn and ethanol from cellulose. Some of them have a bar below the line. That means you sequester CO<sub>2</sub> when you grow corn or you grow biomass. So you take that dark part off of the upper bar and you get much less. It results in about a 40% reduction in greenhouse gas emissions for ethanol from corn and 60% to 70% for ethanol from cellulose. That's very significant. Then for fuel cells, you see the smallest bar there is a fuel cell vehicle working on hydrogen made from electrolysis using Ontario's power generation mix. So you see the possibility there is quite a lot for reducing greenhouse gas emissions, and that's why we're interested in it.

The chart on the next page just gives more detail on greenhouse gas emissions from fuel cell vehicles from a variety of fuel sources. I won't go into that because of the lack of time. Then on the last slide there is a diagram showing the different routes from feedstocks on the right-hand side through to vehicle technology on the left-hand side. The interesting thing there is that fuel cell vehicles can use a variety of feedstocks including biomass. We're doing work on most of those options right now. Thank you very much, Mr Chairman.

**The Chair:** Thank you for the presentation, obviously very exciting information that you're bringing forward. I hope you will stay on recall. We may be back either by video conferencing or back in Ottawa to chat with you in the future. We have eight or nine months to work on this. I'm going to give two minutes to each caucus to ask some questions. Our flight is a bit flexible, so unless there are any objections, a couple of minutes to each caucus and then we'll move on to the other delegations.

**Ms Marilyn Churley (Toronto-Danforth):** Thank you very much for your presentation. There isn't a lot of time, so all the questions I have to ask will probably wait until later. I guess for now I'd just like to ask you what you meant by the long-term objectives to proceed with these renewable energy strategies and what can the federal government do to speed that up so it's a shorter term.

0910

**Mr Welsh:** I guess "long term" refers to the fact that we have some longer-term problems. At the same time, we have a challenge in deploying the technology, which

itself takes time and mobilization of resources from companies and participants in the marketplace. So long-term certainly can mean something in the order of 10 years. Speeding it up can be done in a variety of ways, and of course that's what the federal government is attempting to do in part of what we've described today in terms of providing certain kinds of market incentives, both financial and otherwise. Without getting into great detail, that's the general approach.

**Ms Churley:** So we're talking perhaps about more tax incentives and other instruments, realistically, to make sure that these kinds of renewable energy strategies fit into the existing marketplace. From what I understand from your brief presentation, the policies are driven by those kinds of tax incentives. In reality what you would have to look at is more of those incentives so that there's an easier time to get into the market. I know you're not from finance.

**Mr Godin:** Actually, with respect to renewable energy we have a range: there are tax incentives; there are actual programs; there's R&D funding. There's a range of instruments being used. Right now it's difficult to speculate what decision the government of Canada will take in the future, but if you look at what we did over the last year, our instructions, within the climate change file anyway, were to look at what the national consultation process had produced. That process took about 18 months. There were several tables set up, one on electricity, on buildings, on transportation and so on, and each of these tables produced option reports. With respect to renewables and electricity, in Action Plan 2000 really we looked at the option report from the electricity table. Measure 7 in that report is about emerging sources, non-emitting sources. There were about seven sub-measures proposed under that heading. In Action Plan 2000 we actually respond to four or five of these measures. So in the future we're certainly going to keep looking at measure 7 of this option report.

**Mr Jerry J. Ouellette (Oshawa):** Thanks for your presentation. Unfortunately we don't have a lot of time to go into the questions that we would all like to ask, but I'm going to give you an opportunity. Have you seen the August issue of Canadian Business, "The Next Energy Crisis"?

**Mr Welsh:** No, I haven't seen that.

**Mr Jerry Ouellette:** Maybe you'll want to see that. I'm going to give you an opportunity to respond to one of the key criticisms here that affects the federal government. It talks about the fact that we realistically haven't got a hope in hell of supplying the natural gas demands even with the new pipelines coming down. It says in here that Canada's National Energy Board just doesn't have a handle on the crucial information. What they're referring to are the gas deposits found throughout Canada and supplying the demand. What are the feds doing to take care of the concerns of the natural gas deposits in order to fulfill that demand?

**Mr Godin:** It would be better to ask the question of National Energy Board officials.

**Mr Jerry Ouellette:** I'm just asking the agencies that are here that essentially represent the federal government.

**Mr Reilly-Roe:** I have a little bit to say about that. The standard response is, "We're studying it," but we actually are studying it. We have a study with the US Department of Energy looking at long-term energy sources and demands, particularly related to transportation, which is a crucial area, and natural gas is in that bailiwick as well because transport may have to rely on liquids from natural gas. In the next 15 to 20 years they may be coming in. So we're very concerned about that and we need to study it on a continental basis, not just a Canadian basis, and we're doing that. What happens is that if we maintain our current growth patterns we start to deplete current resources in the next 30 to 40 years, and so we have to find replacements for conventional fuels. I guess the largest response to that is the development of the tar sands and the additional incentives and plans for tar sands plants coming on stream. That's going to make a huge difference on oil depletion in Canada.

**Mr Ernie Parsons (Prince Edward-Hastings):** My question seems rather mundane after that, but I'm interested in the greenhouse gas emissions slide. When you determine that—and I'm particularly intrigued by the ones for corn and cellulose—how far upstream do you go? Do you consider greenhouse gas emissions produced by planting the corn, by spraying the corn? Does it also include emissions involved in the production of the fertilizer and the production of the tractor and the production of the chemicals? How far up does it go?

**Mr Reilly-Roe:** It goes right through those, from producing fertilizer, from planting, from tractor emissions, tilling, every upstream emission we can think of, and the same for the conventional energy it is compared against. It also accounts for changing land uses. If you take soybeans out and put corn in, as the land use changes there is different fertilizer use. If you're taking marginal land and putting it into production, there's a different set of calculations for that. It's fairly complete.

**The Chair:** I think we need to move along. Thank you for coming in and presenting.

#### NORAMPAC, TRENTON DIVISION

**The Chair:** Our next presentation is Norampac, if they'd like to come forward. No interference on my part whatsoever, but coincidentally the clerk arranged that someone from my riding would be the first delegation to present. Welcome.

**Mr Gary Hodgins:** Good morning. I'd like to thank Dr Galt and members of the committee for having our presentation this morning.

In order to keep up with the time constraint, we have a shortened presentation that's different from the handout. I suggest that people turn and look at the screen. It would be more informative and better to look at than me this morning. We'll go along that route in order to keep with our time.

My name is Gary Hodgins, general manager for Norampac in Trenton. My colleague is Dr Bob Rowbottom, senior technical director for the company. We're here this morning to talk about PulseEnhanced steam reforming, which is a low-impact technology for generating energy from biomass. The objective here is just to introduce you to our technology, which is destined to play a major role in the generation of energy from biomass with a low impact on the environment.

This is our Trenton mill, in Dr Galt's riding. The Trenton mill is one of 10 Norampac mills. Norampac is a joint-venture company of Domtar and Cascades, which are both wholly owned Canadian companies. We are the largest container board or cardboard box company in Canada and the eighth largest in North America. This particular mill has the distinction of being the first pulp and paper mill in Canada, or North America, to have zero process effluent, and it remains that way today. We're talking about cutting-edge gasification technology and we'll come to it in a minute and what it will do.

At the Trenton mill alone, and this is just one of 10 mills in our company—about 60 mills in Canada have the potential for this, and it's not just a pulp and paper technology. In our small mill, we will cut our greenhouse gas emissions by 11,000 tonnes per year and we'll cut our natural gas consumption by 6 million cubic metres. This is the potential for the commercial application of this biomass technology. These are very, very significant numbers for the type of industry we're in and the potential we have.

What is PulseEnhanced steam reforming? It is biomass reduction to energy. It is not incineration or partial oxidation. It's a gasification you carry out in a steam-reducing environment. The organics are converted to hydrogen and carbon monoxide, which are both fuels, and the carbon monoxide reacts with steam to produce more hydrogen. This is an endothermic reaction, which means you add heat to make the reaction occur. It's not exothermic like incineration, where you're burning. So it's a very significant difference from incineration.

#### 0920

This is actually the PulseEnhanced steam reformer. This unit is going to be installed in Trenton—we start in October—and is about 60 feet high.

Gasification technology is not old technology. It's been around for a long time. It works. It has never been energy efficient. The trick in the reformer is, these are the heat exchangers—and we'll show you a picture in a minute—in which you add heat to a biomass that causes the steam reforming action to occur and reduce the biomass to what we call a reformat gas or product gas.

In the past, you had to add more energy to a gasifier than the energy you got out, so it was a net energy user. What they've done with PulseEnhanced is that the burners are twice as efficient as before, and you now produce twice as much gas as you need to run the unit, so 50% is available for export. This is what we call a reformat gas.

This technology works. We talk spent pulping liquors, the lignin and leftover fibres from the pulp mill. We have



our pulp and paper mill solid waste. As I say, we're a zero-effluent mill on the water side. This will put us very close to being at zero discharge on the solid waste side. The technology works with municipal solid waste, sewage sludge, agricultural waste, old tires. All these have been proven. It's any biomass. Our steam reformer will run at about 98% efficiency. So if you put in 100 tonnes of biomass, 98% of that biomass will get converted to a clean-burning fuel.

These are the actual heater units, which are being built at the company in Baltimore. This is the combustion chamber. And it's these special heaters that allow the efficiency to take place. This is the patentable part and the revolutionary part that's the breakthrough.

The gas that's produced by a steam reformer—these are the actual results. We have six weeks of testing around the clock. There are other companies involved in this. It produces primarily hydrogen, carbon monoxide and a methane gas, which is a very, very clean-burning fuel. This fuel—in the tests that have been done, and we'll show the full-scale size in a minute—produces less  $\text{NO}_x$  than a natural gas burner today. That will be from the biomass.

We will use that gas in a conventional natural gas boiler to generate steam for the Trenton mill. That's where our energy savings come and our emissions get lowered.

At present there's a German company purchasing a unit behind us that will take that reformat gas, burn it in a hydrogen turbine generator and generate electricity. That's the second stage. The third stage is to take that hydrogen gas and run it in a fuel cell.

The results you see here—this was commissioned by the Department of Energy in the United States, which has invested between \$60 million and \$80 million in this technology. They are building a plant in the United States, another paper mill, which will be about a year behind ours.

We actually took our black liquor from the mill, which is the lignin and the fines from the trees—it contains 30% of the mill effluent—ran it through the gasifier, took the gas that came off, ran it through a hydrogen fuel cell and generated electricity—the first in the world, and it was done at the Trenton plant operation.

This is the actual reformer vessel at Trenton—you can see the size of a man at the bottom. Those four round circles will be the four heaters. We have designed the unit to process 110 tonnes of biomass a day. The mill needs to run only 70 tonnes. We will use this as an opportunity, as a commercial test facility for the province or the country to demonstrate this technology for generating energy from biomass. That's the intent that we intend to go with.

These are the actual building drawings. This is a schematic of our engineering. We have a 3D part for drawing up. To give you an idea, the height of this is 60 feet. These are our evaporators. There's a boiler here that burns off the gas to generate the power for the mill.

All of this equipment is on order. These people are very anxious to get into the energy business and get things on a commercial scale. We have insisted, and it's part of our purchase agreement with them, that all the equipment must be built in Canada, so the boiler is presently being fabricated as we speak by Foster Wheeler in Niagara Falls. The steam reformer itself and all the technology—there are two firms. One is the potential of the shipbuilding company in Niagara Falls, or another firm in Niagara Falls. There are two of them in Canada. And the evaporator equipment will also be built in Canada. So there's the potential, when this technology takes off and gets demonstrated and people see it working and see the type of efficiencies we're talking, that it is a built-in-Canada solution.

In summary, PulseEnhanced steam reforming offers a capability to process a wide range of electrical power generation—in our case we'll use steam, but any generation—from biomass with a very low impact on the environment. The efficiencies: 98.5% is our guarantee with the company. The environmental impact: the huge reductions at the Trenton mill are similar to what will be achieved in other places.

The Germans are one unit behind us. Theirs will be strictly on sewage waste, waste from a town, tree trimmings, roots, all the things you're not allowed to landfill in Germany. They have achieved 95% efficiency on converting that from biomass to energy. They will run it through a turbine generator and generate electricity for the cities that generate the biomass.

The Americans have the pulp and paper mill in West Virginia, twice the size of the Trenton mill, and they are installing the same technology but they are about a year behind us.

As I say, for this commercial-scale demonstration, we're building it bigger than it needs to be. We want to be Ontario's and Canada's—we hope this is the Candu reactor for biomass and energy production. So it's a very thrilling story for us. It came from a different story, but this is the good-news side of the story.

**The Chair:** Thank you for your presentation, a very different direction on biomass. We have about two minutes per caucus, starting with the government side.

**Mr John O'Toole (Durham):** Thank you for your presentation. Do you burn paper sludge?

**Mr Hodgins:** No.

**Mr O'Toole:** What do you do with the sludge?

**Mr Hodgins:** The sludge right now—we look after lots of mills. Most sludge today is landfilled; that's where most of it goes. Some paper mills put it on for agricultural use, but in most paper mills the sludge from paper is landfilled.

**Mr O'Toole:** There's no chance that it could form part of this? It's celluloids and fibres.

**Mr Hodgins:** Yes. At the Trenton mill, the sludge—in all the tests and all the numbers I've talked about here, our sludge is part of the reforming process. It will go in the reformer. That's that 98% efficiency we talk about. It contains all the sludge from our mill. It will be the first

mill that has no sludge being hauled to a landfill. We'll generate energy for the plant for that, and we shut off our natural gas supply—less emissions.

**Mr John Hastings (Etobicoke North):** Without getting into great detail, does your company or the combination of companies here take advantage of existing financing, either through the feds' budget with the conservation renewable expense allowance, or is it all internally expensed?

**Mr Hodgins:** At this point in time the project is totally expensed internally. We have met with about four different government agencies. Actually, we meet this afternoon with TPC, which you saw this morning, but we are seeking financial help. As I said, we only needed a 70-tonne unit to run the plant and take care of all our solids but we bought a 110-tonne unit, again to allow for expansion. Also, we want to demonstrate this technology for Ontario and for Canada. We're building it in Ontario, it's going to run in Ontario, and the market down the road is just immense.

0930

**The Chair:** To the official opposition. No questions? Ms Churley.

**Ms Churley:** Thank you for your presentation. I just wanted to be clear on this because it's new technology to me and it's a very short presentation. Is there no waste generated at all that has to end up in landfill? There must be some.

**Mr Hodgins:** Yes. As I say, 98.5% is our number, Bob, for conversion?

**Mr Bob Rowbottom:** Carbon conversion.

**Mr Hodgins:** So in our plant we'll have about one and a half to two tonnes a day. The waste often is pure activated carbon, and at our point this will be landfilled. Other firms will sell that, as you can use that as a fuel, or that's the same stuff you use for water filters.

**Ms Churley:** So there will be no toxic waste in any way coming from this—

**Mr Hodgins:** No. This thing runs at 1,100 degrees, so the minute toxins that are in the waste are immediately gone, steam reformed.

**Ms Churley:** So unlike incineration of solid waste, which is something I object to, I am very excited about this. Obviously not everything can be treated in this way, but if we had an opportunity to expand this kind of technology along with doing things like more composting and other kinds of energy conservation and efficiency reforms, could we end up avoiding burning any kind of garbage?

**Mr Hodgins:** Yes. This is the major difference with this. We're going to use this technology in a pulp and paper application, but this is a biomass technology. The Germans will put straight biomass in it. It's designed for agricultural waste—it just loves that stuff—plastic, sewage. That's what it's made for.

**The Chair:** Thank you very much for a most interesting presentation, and best of luck with the project.

**Mr Hodgins:** We'll have Dr Galt at our dig with the shovel when we start next month.

**The Chair:** Who hasn't volunteered.

**Mr Hodgins:** Yes.

## ADDINGTON HIGHLANDS ECONOMICS COMMITTEE

**The Chair:** We'll move on to the next presentation, Paul Isaacs from the Addington Highlands Economics Committee. Welcome. I think I saw you here much earlier this morning.

**Mr Paul Isaacs:** Yes, you did. I didn't know how long it would take, so I came down early.

**The Chair:** Thank you very much. You have a total of 20 minutes for presentation and questions following.

**Mr Isaacs:** Thank you for allowing us to present today. Our chair, Bill Brown, has been forced by a sudden illness in the family to send his regrets. He requests the committee's indulgence.

My name is Paul Isaacs, as has been mentioned. I'm the secretary of the committee and will be addressing you today on behalf of the committee.

The township of Addington Highlands occupies the northern half of the county of Lennox and Addington. As the name implies, it is an uplands area. The township contains the headwaters of three separate watersheds and has some of the highest elevations in eastern Ontario. Because wind speed increases with elevation and because the power output of a wind power generator increases dramatically with wind speed, Addington Highlands has some of the best wind power sites in all of eastern Ontario.

The township has another characteristic feature: crown land. In fact, Addington Highlands is over 70% crown land. The surrounding townships in Frontenac, Hastings and Renfrew counties are similar to Addington Highlands. Therefore, the large majority of the most promising sites for wind power generation in eastern Ontario are on crown land.

The Addington Highlands Economics Committee was struck by the township council to examine the economy of the municipality and make recommendations to council with respect to economic activity within the township. The seven members of the committee have a collective total of over 120 years of business experience. All of that experience has been accumulated by operating small businesses in a very demanding economic environment. There is no opportunity for waste and duplication in Addington Highlands. There is no opportunity for poor decision-making or failure to make hard-nosed business decisions on a daily basis.

The members of the economics committee are well aware of the provincial government's preference for private enterprise. The members of the committee obviously have a preference for private enterprise too. However, the business success of the members of the committee also indicates that committee members are obviously able to make the distinction between winning and losing business opportunities.



The collected experience of the Addington Highlands Economics Committee has brought the committee to the conclusion that without crown land sites, wind power generation in the eastern Ontario highlands region is a losing business proposition.

In corresponding with the provincial government, the committee has found that the policy position of the government of Ontario is that the province will not participate in developing wind power generation and that the municipality should form a public-private partnership in order to develop wind power generation capability; and that there is no provincial policy at all with respect to the use of crown land for siting wind power generators.

It is the position of the Addington Highlands Economics Committee that the provincial government insistence on public-private partnership will result in there being no wind power generation capacity at all developed in the eastern Ontario highlands region without the development of a policy that permits siting on crown land. It is the committee's position that the exclusion of 70% or more of the available sites precludes an adequate return on investment for commercial enterprises.

The Addington Highlands Economics Committee recommends that the alternative fuel sources select committee indicate to the provincial Legislature that wind power generation in the eastern Ontario highlands region depends on the current provincial policy vacuum being filled by a coherent policy with respect to the siting of wind power generators on crown land. Without such a policy, a valuable source of pollution-free power will remain needlessly unavailable to the people of Ontario.

Regarding the more general topic of alternative fuels, the economics committee would like to indicate to the alternative fuel sources select committee that all of the alternative fuels that are currently technically possible are fundamentally different from fossil and nuclear fuels.

Fossil and nuclear fuels are high-energy-density fuels. These fuels contain a great deal of energy per unit of volume and that makes their energy density high. The engineering consequence of high energy density is that a fuel can be brought to a single site in sufficient quantity to make multi-megawatt power generating stations possible. The huge power generating stations that we have in Ontario today would not be feasible without high-energy-density fuels.

The automobile also depends on high-energy-density fuels for its existence. The relatively heavy car cannot be propelled reasonable distances by a relatively small quantity of fuel unless the fuel has a high energy density. However, all of the currently available alternative fuels are low-energy-density fuels.

The consequences are profound. The steel head of a hammer cannot be replaced by a balsa wood head. Similarly, alternative fuels simply cannot serve as direct replacements for current fuels in existing power plants and vehicles. The use of alternative fuels will compel the energy generation infrastructure to change dramatically. The small number of very high power output generation stations that exist today will have to be replaced by a

much larger number of lower power output generators. Similarly, today's transportation infrastructure cannot be made to function on low-energy-density alternative fuels.

Even nuclear fuels will be impacted by shifts to low-energy-density alternative fuels. Nuclear fuels must be mined, processed and transported. Currently, most of the activities required to create usable nuclear fuels use fossil fuels. As a result, nuclear fuels have high-energy-density fossil fuel dependencies. To be usable as fuels in the future, nuclear fuels will have to have fossil fuel dependencies removed from the infrastructure for the acquisition of nuclear fuels.

The Addington Highlands Economics Committee recommends that the alternative fuel sources select committee indicate to the provincial Legislature that alternative fuels are low-energy-density fuels that cannot serve as substitutes for high-energy-density fossil fuels in existing power generation and transportation infrastructures.

The existence of the alternative fuel sources select committee indicates that the Ontario Legislature is aware of the fact that conventional high-energy-density fossil fuel resources are being exhausted and that, within the foreseeable future, replacements will have to be found.

The economics committee is aware of large numbers of wind generators in California and in tiny Denmark. Even oil- and gas-rich Alberta has wind generators in the Pincher Creek region. Other jurisdictions have begun to develop low-energy-density infrastructures. The Addington Highlands Economics Committee feels that it is essential that Ontario do the same.

The committee would like to indicate to the select committee that a market-based shift to low-energy-density fuels will not begin to occur until the price of high-energy-density fuels causes the market to react. However, as we have already indicated, low-energy-density fuels will require significant changes in Ontario's energy infrastructure. These changes will require not only capital but time and manpower resources as well. If the Ontario Legislature and the government of Ontario wait for the market, other jurisdictions will have made government-mediated adjustments and Ontario will be left attempting to play catch-up.

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The Addington Highlands Economics Committee recommends that the alternative fuel sources committee indicate to the provincial Legislature that Ontario cannot afford to wait until market-based changes toward alternative low-energy-density fuel sources begin to occur, because other jurisdictions are already making government-mediated infrastructure adjustments toward an inevitable low-energy-density alternative fuels environment.

In conclusion, the Addington Highlands Economics Committee would like to indicate to the alternative fuels select committee that Legislatures and governments can make decisions and create policies that have the effect of directing the market in directions that the market would not take of its own accord. Other jurisdictions are currently making decisions and setting policies that will help

to position them to make the transition to a low-energy-density fuel environment. They are sacrificing a small competitive advantage today in anticipation of the need to gain competitive advantage or remain competitive tomorrow.

Energy is the driving force behind all other technologies. Without a competent energy infrastructure, no jurisdiction can support a technological base for its economy. As high-energy-density fuels become exhausted, the fate of every jurisdiction will depend not on its last-minute reaction but on its degree of preparation for the transition to a low-energy-density environment. That degree of preparation will be determined by the government of the jurisdiction in question—not the market.

The Addington Highlands Economics Committee believes it is unlikely that there is any more important legislative committee than the one we are addressing today. The decisions made by this committee and the subsequent and consequent decisions made by the Legislature and the government of Ontario will have a profound effect on the future of all Ontarians.

I thank you very much for allowing us to present.

**The Chair:** Thank you very much for a very thoughtful presentation. We have about two and a half, three minutes per caucus, beginning with the official opposition.

**Mr Parsons:** I lived in Cloyne for a couple of years and in fact met my wife there. So I think I have some sense of the region.

Have you had studies or do you have data showing—and I'm not sure how you measure the wind—the number of days that the wind blows in excess of five kilometres an hour or—

**Mr Isaacs:** The economics committee has done a preliminary study of that and the closest wind that we can find is Environment Canada for Ottawa. The average wind speed in Ottawa is 14 kilometres an hour. We expect higher speeds because we're higher elevations. We have some good hilltops in Addington Highlands. At 14 kilometres an hour and at current market electricity rates, the payback on a wind generator is about 20 years.

**Mrs Marie Bountrogianni (Hamilton Mountain):** An excellent presentation, thank you. You mentioned a few of the jurisdictions that are basically developing infrastructures for low energy density. What other jurisdictions? You said other jurisdictions have begun to develop low-energy-density infrastructures. What other jurisdictions did you have in mind that you favoured?

**Mr Isaacs:** I was mostly referring to wind power in this sense. It's the major technology that's available today to form substitute—especially for electricity generation, and that's the one that I was thinking of mostly.

**Ms Churley:** Thank you very much for your presentation. Can I ask you a bit more about the difficulties around crown land and what we need, as a committee, to specifically recommend be done?

**Mr Isaacs:** I don't know whether this is difficulty around crown land per se. The problem we have is that we approached the MNR and there's no specific policy

with respect to wind power sites on crown land. Because the wind speeds in eastern Ontario are just marginal for a return on investment, the committee's internal decision was that we needed those crown land sites to have enough sites to make it commercially viable. If the crown decides that they're going to charge a great deal of money in order to do that siting, then that will probably make it to the point where nobody will wish to do that. The impacts in terms of the environment, in terms of the animals, are minimal, because the sites would be on the highest parts of the land and the amount of land that would be disrupted in order to put in wind power sites in eastern Ontario would be really minimal in the crown land areas. So this is a real opportunity.

**Ms Churley:** Are you in the process of talking with the ministry? Where are you at in the process of trying to get access to those lands?

**Mr Isaacs:** We have talked to the Ministry of Natural Resources, and they directed us to the Ministry of Energy, Science and Technology. We wrote to the Ministry of Energy, Science and Technology, and the Ministry of Energy, Science and Technology said there's no real policy in place now. There is apparently a crown land usage initiative that's being worked on by the MNR at the moment, but there's nothing in place right now.

**Ms Churley:** So that's the major thing that's holding you up?

**Mr Isaacs:** That's the major reason for our appearing here today.

**Mr O'Toole:** Thank you very much for your presentation. I appreciate the formal recommendations here, as well—they were well thought out—and the township for having the foresight to have an economic group like yours looking at rather technical applications of whatever assets you have in terms of resources.

With respect to looking at competition within the energy generation or power generation sector I think it's an important motive, and wind now has become a current topic, as well as biomass and a few other kinds of energy generation or power generation. I kind of concur with you that wind has been overlooked, whereas in other jurisdictions it's evident that it isn't nine cents a kilowatt when you can get a massive base working with the supply and the technology part of it.

How do you feel, though, about having the province, in its policy development specific to the crown land point that you're making, work in partnership with other consortiums? The government, as I see it, is not in the business of creating power; really, it's technical and other partnerships that should provide that. But in the sense of allowing the crown land to be an important part of its principal investment, do you think that is a possible policy direction that you would like to see this committee recommend, where we use the land base as our part of a partnership with OPG, or whoever, who then put in the technology and operate?

**Mr Isaacs:** Our wish, as an economics committee, is that that crown land could be used for wind power generation and that the crown does not decide to charge



such a fee that nobody will use it. We don't want to have the province in the business of generating power. That's not the issue. The issue is that there's land there that could be used by the people of Ontario to reduce the pollution in Ontario, and it doesn't harm the rest of the uses of that piece of crown land. So we think it should be opened up.

**Mr O'Toole:** Can you see any opposition to wind-mills or wind farms? I can see the lineup starting on the 401 with the signs and stuff. They'll be opposed to it, because it's very noisy, it obscures the landscape and it potentially could kill hawks or something.

**Mr Isaacs:** In terms of noise, there aren't that many people in the Addington Highlands to be bothered by the noise. The question of birds may come up. But from our point of view it's a trade-off. You're producing polluting power versus non-polluting power and you may lose a few birds along the way, but a lot of birds are killed running into buildings in downtown Toronto too. So I don't really think that the environment—

**Mr O'Toole:** Thank you.

**The Chair:** Thank you very much, Mr Isaacs, for a very thoughtful presentation. I also chair a task force on rural economic renewal. This really didn't come up before them, and I'm certainly going to make sure that this paper gets before that committee as well. Also, I grew up south of where you are, where the Lennox generating station sits, so it's kind of neat to have you coming before us. Thank you very much for an excellent presentation.

0950

## STEVEN GUILBEAULT

**The Chair:** Our next presenter is Steven Guilbeault. We look forward to your presentation.

**Mr Steven Guilbeault:** Excellent. Thank you for inviting me here today. One of the most important factors is that you're a committee that's making decisions, you're researching the alternative energy possibilities that are out there, and you can't make one decision and not have it affect a lot of other areas of expertise. Through my presentation you'll learn a little bit better what I'm talking about. A few of my friends around Mattawa actually asked me to show up. Mattawa is in Mike's riding.

Dear committee members: you have a wonderful opportunity to make a difference in the lives of all Ontarians. By participating in this study of alternative energy sources, it is your actions that will impact on government policy for generations to come, let's hope. My ideas are, I guess, a point of attack where you can try and make the difference.

Ontario is presently writing a new curriculum, and it wouldn't be a very good idea to not use Ontario's new curriculum to inform our young people about the alternatives that are out there. So it would be a major bonus to include mini-solar-panel generating stations in each

school. It would be a good idea. Kids could have hands-on learning at that time. Solar or wind—good ideas.

We should use TVO in the way it should be used, to support the government's educational policies. Obviously, they probably have before, but they should continue making productions that include alternative energies. I have some books over there that we'll pass around the table afterwards and we can actually peruse them and discuss them a little bit if we want. So TVO would be a great asset for what we're trying to accomplish here today.

Most of the suggestions that I'm making today are at absolutely no cost because the costs are already being incurred. It's not going to cost us anything else to get TVO to produce some more stuff, and it's right in line with what we're doing. It won't cost us any more to educate our kids, because that's what we're doing already. Schools buy computers; schools can buy solar panels. It's just part of the hardware.

Our libraries here in Ontario do have a system for helping people order books through their network, but through my conversations with librarians, they have a hard time explaining to people what these actual books are. That's what I'm passing around here, these books. How is a person to know what is really out there, what the subject matter is, on a little blurb? If you as a committee suggest that the librarians can get this together as a special project and develop a complete category on alternative energy sources for the man on the street, again, the cost is none.

If you thought it was a good idea to develop alternative energy sources, I envision a system similar to the Ontario student assistance program—name it something else, obviously. But presently, an average family is spending approximately \$150 to \$200 a month on hydro-electricity. This could easily be turned over to a bank where they are actually paying off their solar panel systems, their generating systems for their private homes. I've included some numbers. They're rough numbers; I realize that. Use some common sense on that. But if you do make some kind of system where people can get loans, it should definitely be self-sustaining, with no government handouts in it. It's not really necessary. People are already spending this money for their electric bills.

I'm an advocate of straw bale building systems, and one of the books actually deals with that. I've participated in a workshop and I plan on building my own home next year of straw. To reach the efficiency it can achieve, and I believe it's something like R-52, it's incredible, you'd get the same insulation factor from the regular—what do they usually use? It's glass insulation.

**Interjection:** Fibreglass.

**Mr Guilbeault:** Yes. You'd get the same insulating factor from that, but you'd have to have the same width of wall. It's one of the characteristics of building with bales that you have thick walls. They also dampen the sound from the exterior. So the use of straw bales in construction is gaining more acceptance every year. It is

a renewable resource, and in studies it has outperformed traditional wood frames. By encouraging the use of straw bales, or for that matter any other alternative, which could be adobe or stacked wood, the very nature of these building materials makes them highly efficient, so you're using less energy to start.

When you're going to be building buildings, Ontario needs some social housing. This is where I'm getting at how you make one decision and it affects a lot of other areas. If Ontario wanted to continue building highly efficient homes for people who are in need, straw bale is highly efficient, very quick to put up, and people are really happy in them. It's about half the cost going up. The outside walls don't cost a lot. You're putting a roof on it, you're putting hardwood floors or whatever on the inside, and you've got the same plumbing, but you are looking at about half the cost for social housing.

Really look at that book. Take down the name of it. There are companies here in Ontario that build with this material. I'm sure they'd love to give you some pointers on how to build them.

Emergency shelter: one of the articles that I'm passing around, which I took from the newspaper, says that apparently Ontario's not ready for an emergency. This straw bale stuff goes up really quick and people can be comfortable in it. It's very comfortable stuff. If we used it for social housing or for emergency housing, it would be very useful.

Again using the assets that we actually have—there's no cost, again—in informing people about government policies on alternative energy choices. On magazine would be a good choice for that. I read it all the time, or at least I try to. It's there for us. It's not costing us anything to get the word out on government policy. When people understand it, then they can go along with it.

For new businesses in Ontario, the alternative energy sector is the way of the future, to be assembling solar panels, assembling the wind generators, to be doing some of this research. If we're going to be trying to attract people to set up their businesses here in Ontario, let's look at this and get them to come here.

Following here, I've got two open invitations for you. You can either show up personally or as a whole group. Some of the people of Mattawa have invited you, the whole committee, to show up and come on over with Mike, if you'd like that, and visit a house that's completely off the grid. They'd be happy to speak to you about the choices they've made and how it affects their lives. They are energy misers, and it hasn't really affected their lives in any negative sense. They enjoy themselves, and it's quite possible that once the word is out, more people in Ontario can make these choices as well.

The second invitation I'm going to offer you is that next year I'm going to be building my own home out of straw bales. I haven't actually decided whether it's going to be post and beam and just infill the walls. Purists in this building construction method prefer to have structural walls made of the straw bales. They're trying to

convince me to do that, and I think it's a wonderful opportunity to test it out. So if you would like to get hold of me or see that other house, we'll put some mud in your hands—actually, you cover the exterior and interior of the walls with cement. So it's very possible, and you'll see in the book I passed around that it's an amazing technology. There are homes, I believe, in Nebraska that are over 150 years old and suffering nothing from the elements.

In closing, I would like to remind the committee that just because we live in North America, it doesn't give us the right to have unlimited amounts of energy to waste. If we don't start thinking of using our energy resources more wisely, our children won't either. That's why we've got to teach them in school. The example has to be set by someone, and I suggest that we start. The use of solar panels to collect the sun's energy, with all the apparatus required, will create jobs for Ontarians. These systems are very low maintenance. Practically anybody can use them; they're really simple. They are a practical solution to the building of big, expensive hydroelectric dams or the even more expensive and environmentally unfriendly nuclear generators that last for millennia.

#### 1000

In our schools and homes we try to teach our children the three Rs: reduce, reuse and recycle. I would like to add a fourth R: rethink—rethink our needs. We don't need unlimited access to electricity. It's expensive for us and for the environment. We need to become energy misers. There are certain industries that require great amounts of energy, but let them use it and let the person on the street use just what they need.

Our present government has established a reputation for quick, effective and efficient change. This committee will report its findings and perhaps suggest an appropriate course of action. Please don't regulate the industry to death. If you regulate too much, then the average guy on the street won't be able to do anything; his hands are tied. Right now it's pretty much the wild west. It's probably a good way to keep it. Take a common-sense approach.

**The Chair:** Thank you very much for a very interesting presentation. We have about 30 seconds for either a quick statement or a quick question from each caucus.

**Mrs Bountrogianni:** Thank you for your presentation. I do agree on using our curriculum and our libraries to get the messages out to our kids. It drives me crazy when I come home and there are lights on in empty rooms or the computer is on.

You mentioned using straw bale for social housing plans, that there will be only small lifestyle changes, nothing that would cause undue hardship. As someone who comes from a very computer-oriented family, with my kids and so forth, what do you mean by that? What sort of lifestyle changes would have to be made?

**Mr Guilbeault:** When you're using computers and something that would take a lot of power like that, you're probably going to get a small generator on the side. When you're choosing to burn electricity, you're making



a conscious choice; it's not just flicking a switch. You're going to have to do a little bit of extra work for it. So that's turning on the generator.

**Ms Churley:** There's no time to ask you questions, but I just wanted to take the opportunity to thank you as a private citizen for coming in and giving us your views, because in these kinds of often highly technical committees, there are a lot of groups and government organizations, so it was quite refreshing. I'm very pleased to see private citizens like you taking the time to come and inform us of what you're doing as an individual and a family to help deal with the difficulties around energy consumption. Thank you.

**Mr Hastings:** Mr Guilbeault, how would this work where your building codes require not using this material? How are you going to get your house built where you're going to build it without major problems with either Hydro or the building people?

**Mr Guilbeault:** There have been experiments all over the world and here in Ontario actually there are a few straw bale homes already constructed. If you get hold of Chris Magwood—he lives just south of Algonquin Park somewhere—he's building with Camel's Back Construction, and he's building stuff all over the province.

**Mr Hastings:** Even in urban Ontario?

**Mr Guilbeault:** Even in urban Ontario.

**The Chair:** Our time has run out. Thank you for a very interesting presentation.

#### IOGEN CORP

**The Chair:** We now move on to the next delegation. Is Jeff Passmore present? Please come forward. As you begin, state your name for the record, and we have a total of 20 minutes for your presentation and questions and answers.

**Mr Jeff Passmore:** Thank you very much to the committee for allowing me to appear. My name is Jeff Passmore, executive vice-president, Iogen Corp. I appreciate the opportunity to be here.

I have circulated a handout with some overheads which I'll speak to in a minute, and a company brochure and a photograph.

I actually asked to appear before the committee largely because of the frustration I was feeling this summer while driving in my vehicle and listening to the radio and reading in the newspaper about the number of days of smog we've had in Ontario—I think 17 days of smog south of Thunder Bay—and smog warnings. The solution is so obvious, it's staring us in the face, and it's to put oxygen in your gasoline. It can go in cars today. Ethanol is an oxygenate. They do it in the States; they've been doing it since the Clean Air Act in 1990. So I just wanted to start off by saying that the committee hearings are very timely.

I'm going to go through this very quickly so that we can get into the discussion and question-and-answer period and talk about this.

On each of these slides there's probably one key point. The first one is to simply to position Iogen: who is this company? We are the world-leading company—and I say that not because we say it but because the US Department of Energy says it and a whole bunch of other people that are in the business say it—in terms of making ethanol from a new source: fibre or cellulose. All of the ethanol we consume today comes from grain, primarily corn or wheat. In the US, 99% comes from corn; in Canada there are corn and wheat plants. We wouldn't be making the ethanol from the grain portion of the plant but rather the fibre portion of the plant, so the straw or, in the case of corn, cobs, stalks and leaves. We have spent about \$80 million in the last 20 years developing this technology, and we've just completed construction of a \$35-million demonstration plant, which is the picture you have in your packages.

The second slide is simply to then situate ethanol. We probably already all know this, but this is not some weird fuel; there are two trillion miles of driving experience with ethanol. It's used widely in Brazil and in the US and it is used in Canada. In Ontario, Sunoco is the major user of ethanol. Every grade of gasoline you buy at a Sunoco station, whether it's 87, 89, 92 or 94 octane, has just under 10% ethanol in it. In Brazil, of course, they run on E24 or E95.

People sometimes come up to us at our trade show booth and ask, "How come my owner's manual says I cannot put ethanol in my vehicle?" It does not say that. It says you cannot put methanol in your vehicle, and there's often confusion between the two fuels. That's why that owner's manual message from General Motors is in the brochure.

The next overhead is simply a shot not of a low-level blend car but of a flexible fuel car. That's an E85, as it's referred to euphemistically, an E85 Ford Taurus. I drive one. There are over two million of them on the road in the US. A year and a half ago when I went to order one from a Ford dealership here in Ottawa and I said I wanted a flexible-fuel vehicle, they said, "What's that?" Again, it's driven by regulation in the US. In that case, it's driven by CAFE standards—corporate average fuel economy. Across the vehicle fleet in the US you must achieve an average fuel economy, I think it's 28 miles a gallon, and you get a credit for alternative-fuelled vehicles against your average fuel economy. Of course, car companies like GM and Ford and Chrysler are increasingly coming out with these flex-fuel vehicles because everybody's buying SUVs, which is throwing the average fuel economy into the toilet.

These cars are not complicated. This is a normal Ford Taurus. It has a \$100 part which is an oxygen sensor. It's not an after-market conversion. These are what's called original equipment manufacturer and basically it's one tank, no dial to throw or switch to turn. If I can't fill up with the E85—and there's only one place in Ottawa that I can—then if I just put regular gasoline in the vehicle I'm driving on E41 or E17—I haven't got a clue. It doesn't matter; the car doesn't care. The oxygen sensor simply

tells the fuel injection what fuel mix it's burning and makes the adjustments automatically. It's in the onboard computer system.

#### 1010

By the way, in Ontario that car is cheaper so Ontario has done one thing right so far, which is to say that if you buy an alternate-fuelled vehicle in Ontario, the Ontario government waives the PST up to a maximum of \$1000. So, with that car, when people say to me, "Didn't you have to pay more for it," it actually cost me \$1,000 less than if I'd bought the Ford Taurus non-flex-fuel option.

The next couple of overheads are simply putting it in the environment and public health perspective. I won't read them but it talks about reduction in CO, reduction in CO<sub>2</sub>, reduction in NO<sub>x</sub>, reduction in benzene and other carcinogens. The following slide talks about the Clean Air Act, the oxygenated fuels program and the reformulated gasoline program in the US.

It comes as a surprise to a lot of Canadians to learn that in this area, at least, we are way behind the Americans. Toronto and Vancouver would be off-side with the Clean Air Act in the US. The way they've dealt with it in places like Chicago is to put ethanol in the gasoline. Chicago, surprisingly, has cleaner air than Toronto does, and it's because 90% of the gasoline in Chicago under the reformulated gasoline program has ethanol in it.

The next slide is showing what is unique then about cellulose ethanol. I described that Iogen basically is not going to make ethanol from grain but rather from the fibre portion, and you can see that the product is the product, ethanol is ethanol, but what's unique about cellulose ethanol is the fact that with respect to greenhouse gas emissions they are essentially net zero. This is not our work. We don't have the capability of doing these sorts of lifecycle analyses at Iogen, and if we did, no one would believe us anyway. This is the work of the US Department of Energy, and you can see the comparative full life cycle CO<sub>2</sub> emissions from gasoline, ethanol from grain, and ethanol from biomass or bioethanol.

Now, I would say that with respect to this ethanol from corn, 10.2, that assumes coal-fired generation for running the facility. If you had natural gas generation running the facility like the plant in Chatham, Ontario, the number would be down there around seven as opposed to 10.2. So slightly less but certainly not anywhere near where you are with cellulose.

The next slide has two messages in it. One is, "Don't implement a \$100 solution if a \$20 solution is available." You can see the various costs there associated with everything from hybrid vehicles to variable valve timing to bioethanol to reduced aerodynamic drag. Again, most of these are US figures, but the point here is that ethanol is an option which is well within the range of pursuing.

There's a second message in this slide. We often get the comment, in some cases from big oil but others, that ethanol is subsidized because it does not pay excise taxes. My answer to that charge is, no, ethanol is not competing against gasoline; ethanol is competing against alternatives to gasoline. So if you were looking at

alternatives to gasoline and ways to reduce carbon monoxide and carbon dioxide emissions, then you're looking at clean vehicles, energy efficiency and energy conservation, all of which are great ideas. But when Ford puts aluminum in a vehicle and hence gets better mileage to the gallon, and therefore reduces gasoline consumption and hence there are forgone revenues to government, nobody says, "Oh my gosh, Ford's putting aluminum in vehicles. We'd better tax it because there are forgone revenues to government." Or when I ride my bicycle to work instead of taking my car, nobody says, "Jeff consumed less gasoline today, therefore we better tax bicycles." The point is that ethanol is competing against alternatives to gasoline, not gasoline, so why would you put a gasoline tax on something that's not gasoline. That's the message in that slide.

The next slide basically is telling you what the EU is trying to do. The European Union is again taking the vehicle approach, although we've certainly seen, particularly in the UK, they've just come out with a green fuels challenge eight months ago. You can see that since 1985, we've achieved very little result in terms of CO<sub>2</sub> emissions from taking the vehicle approach. They want to get the CO<sub>2</sub> emissions down a further 25%, down to 5.9 litres per 100 kilometres. That is going to cost an enormous amount of money and it is going to take a long time. The fact of the matter is that you can achieve a lot of that by putting ethanol in your vehicles today. I should say, not only is the infrastructure there, there's no infrastructure issue; it's already happening. As I say, Sunoco's doing it in Ontario, and Mohawk and Husky are doing it out west. So there's no infrastructure issue involved here. It fits easily into the existing infrastructure.

The next group of slides simply says what's been happening in the US. The first one is simply to say that there's the growth of the United States ethanol industry in grain, essentially six billion litres a year of ethanol made now, and it is going to grow enormously even after this, simply because, as you probably are aware, there has been a problem with one of the other oxygenates in the US, something called MTBE, methyl tertiary-butyl ether, and that has been banned in California and will be phased out by 2004-05. So California went to the federal government and asked for an oxygenate waiver. They asked Clinton and then they asked Bush. Bush denied the waiver, so the only oxygenate remaining to use is ethanol, so there is going to be enormous further growth in the ethanol industry in the US.

How are they going to get that ethanol? Some of the growth obviously is going to continue to come from grain, but the next slide indicates that Iogen isn't just having some kind of hallucination here when it thinks that the future is cellulosic ethanol. This is a scenario from the US Department of Energy which indicates that by 2005 they plan to have a billion gallons a year of ethanol, and by 2010, three billion gallons of cellulose ethanol. Cheney's energy future is somewhat less ambitious in that he would like to see five billion gallons, two



billion gallons of which would be from cellulose by 2010.

People have asked me, since George Bush decided to pull out of the Kyoto agreement, whether that had a negative effect on CO<sub>2</sub> emission reduction technologies. The answer with respect to biofuels is no. I have the President's request to Congress there, and you can go down and see that I've boxed the biofuels line. The appropriations were \$38 million in 2000, \$46 million in 2001, and he's asked for \$43 million in 2002. As you know, the way the US budget system works, it's not like here, federally, where Paul Martin stands up and reads the budget and it's essentially law. That is his request. The response he's had back from the House of Representatives is on the next page. He's asked for \$43 million and the House has recommended \$53 million and the Senate has actually come out with a figure, which I didn't have when I made this note to myself, somewhere in the \$50-million range. So that will then go into committee and discussion to be resolved over the course of the fall. But the point is that they have identified cellulose ethanol as a huge area of need and they are spending the resources to go after it. So you've got both a fiscal environment that will make it happen and a regulatory environment that will make it happen. By "fiscal" I mean that it's excise-tax-exempt in the US. The regulatory environment is things like the Clean Air Act and the minimum oxygen requirement and CAFE standards, and you have the money in the program to lead to the technology development.

The last two pages are simply to say that the same thing is going on in the European Union. There will be a directive issued in September by Brussels to the 15 member states indicating that they must put a certain percentage of biofuels—and I believe it's graduated up to 5.75% of biofuels—in gasoline by 2010. Of course, the way it works in the European Union is that Brussels comes out with a directive and the individual member states have to abide by it, but they can abide by it according to their own means and mechanisms.

The only other thing is the corporate brochure, which I'm happy to answer any questions on. It does indicate what our process is, but I don't want to get into chemistry here this morning. It also indicates a picture of the life cycle analysis of the CO<sub>2</sub> emissions, that essentially emissions from vehicles and running our plant are stored in next year's crop. That's what crops do, of course: they fix carbon to grow, and that crop is then turned into next year's ethanol. The photograph you have is a picture of a plant out on Hunt Club Road at the airport here in Ottawa which is the ethanol demonstration plant that we are just in the process of commissioning. I think I'd like to stop there and take any questions.

**The Chair:** Thank you very much. We have approximately a minute and a half per caucus, beginning with the NDP, or the third party.

**Ms Churley:** Do you always have to say the "third party?"

**The Chair:** We'll just say "Ms Churley."

1020

**Ms Churley:** Thank you very much for a very interesting presentation. Can I ask you a question? What's the difference between using the actual grain and the plant?

**Mr Passmore:** The processes are somewhat similar. We both use enzymes, although it's a slightly different enzyme. I think one of the biggest differences is that right now there is a surplus of straw in places like western Canada and in the US Midwest. When I was a kid growing up in Saskatchewan, farmers used to burn their fields to get rid of the straw. This is increasingly frowned upon because of the pollution associated with it. So farmers are looking for somewhere to make use of this straw. But the other main difference, as I mentioned, is that on a CO<sub>2</sub> basis, if you're talking about greenhouse gases, the CO<sub>2</sub> emission reductions from ethanol, from grain, are in the 30% to 40% range, whereas in ethanol from cellulose they're in the greater-than-90% range.

**Ms Churley:** One other quick question: is there large pesticide use in the growing of the corn?

**Mr Passmore:** There is pesticide and chemical use in the growing of the grain, yes, but that is used to grow the grain. You still have the straw left over at the end of the process. So the question is what to do with this material, and we've developed a way for turning it into ethanol.

**Mr Steve Gilchrist (Scarborough East):** I appreciate your presentation this morning, Mr Passmore. We're charged with looking at options, obviously, for the future, and that can be broken down into short-term and long-term goals and objectives. What I'm struck by in terms of trying to contrast the EU, the US and the Canadian positions right now and what we heard yesterday when we had presentations from all the ministries in the Ontario government is that the biggest problem with ethanol right now would appear to be supply. We are a net importer, according to the ministry. I wonder if you might give your thoughts on the relationship between a decision we might make in terms of regulating an increased use of ethanol to achieve the good ends that you're proposing against the fact that today that would mean exporting dollars out of the country. How fast can we ramp up production realistically in this province and in this country? Do you have any other thoughts on not just how fast, but where, and using which specific materials?

**Mr Passmore:** First of all, yes, I think ethanol is an option. For the present, although you're right that we do import, I think the opportunity to import is going to become less and less in the sense that the Americans are going to need all of their own ethanol to meet the phase-out of MTBE.

If Ontario, for example, decided that it was going to go to a minimum amount of ethanol in gasoline, it would have to be something that would be ramped in over a period, 2008-10, somewhere in that time horizon. Also, I think you have to recognize that with respect to the type of ethanol we're talking about, which is cellulose, we present it to Ontario as a health and environment and high-tech company in Ontario that wants to get into the export market. If you're thinking this is going to help

Ontario farmers because they can sell us their straw and their corn stover, most of the resource is in western Canada. There are five million acres of land farmed in Ontario. There are 32 million acres of land farmed in Saskatchewan. So if we're thinking about Ontario going to a large percentage of ethanol, there's going to have to be interprovincial trade of the product. It won't be imported from the US. There's lots of interprovincial trade of oil now, so there's going to be interprovincial trade of ethanol. Was there another part to your question?

**Mr O'Toole:** Switchgrass: is that illegal?

**Mr Passmore:** Switchgrass has been identified by the US Department of Agriculture as the dedicated crop of choice in the US Midwest. In other words, once you've finished—and you would never exhaust it, but if you're talking about getting billions of litres of material, farmers may decide, "I'm going to get out of wheat and grow switchgrass," because the yields per acre are so much higher. Does switchgrass grow in southern Ontario? Yes, but I don't know what the revenues would be compared to selling corn, for example. You would have to do that tradeoff.

**The Chair:** We're going to have to move along. Maybe we could grow weeds and use that as cellulose. I'm thinking of big weeds.

**Mr Passmore:** This is a big weed. This is a weed that gets you about three tonnes an acre of material.

**Mrs Bountrogianni:** That's excellent, a very interesting and informative presentation. You may have said it and I may have missed it, but what numbers are we looking at with flexible fuel vehicles in Canada or Ontario, to your knowledge?

**Mr Passmore:** How many are there?

**Mrs Bountrogianni:** Yes.

**Mr Passmore:** The federal government has about 45 or 50 of them. Natural Resources Canada has the most; it has 24 or 25. Agriculture Canada has got a number. Environment Canada has two or three. They are very small numbers, but the interesting thing is, I think a lot of people are driving flexible fuel vehicles and don't know it, because of course if you're talking about the original equipment manufacturer, they're just putting this oxygen sensor in cars, but they're not selling them as flex-fuel vehicles except in the US, because what's the point? I was meeting with officials from the government of Manitoba yesterday. They estimate there are probably 20,000 flexible fuel vehicles in Manitoba, but the owners don't know that they can take ethanol—the 85% ethanol.

**The Chair:** Thank you very much for a most interesting presentation. Best of luck with your project.

We will now call on the—

**Mr Passmore:** Can I just say, Mr Chairman, that you're all invited out for a plant tour any time any of you are back in Ottawa.

**The Chair:** Super. Thank you very much.

## CANADIAN NATURAL GAS VEHICLE ALLIANCE

**The Chair:** The next presenter is Michael McNeil, president, Canadian Natural Gas Vehicle Alliance. Please state your name, and you have 20 minutes for presentation and questions and answers.

**Mr Michael McNeil:** Thanks very much. And if you think the last presentation was great, this one is just superb, not necessarily in the presentation and the presenter, but certainly in the vehicle I am about to describe for you.

I am from the Canadian Natural Gas Vehicle Alliance. I believe you have a set of overheads with you. I was going to make a PowerPoint presentation, but I think this may be an easier and faster way to go through it.

The Natural Gas Vehicle Alliance was formed in 1995. We are basically gas utilities from across the country and manufacturers, OEMs and suppliers of natural gas vehicle components and services. As an alliance—and let's not get the Canadian Alliance mixed up here; this is NGV Alliance—we try to influence positively the way in which NGV is regarded as an alternative fuel, and we deliver the message of its economic, environmental and societal benefits.

As we know, this year in Ontario alone we have suffered 23 smog alert days. I don't think that is particularly acceptable, and given that the smog alert days are on the increase, I dread to think of what's going to happen next year and the year after and continuing on as we go through. Some of the headlines that were carried in the papers this year, "Worst of the Smog is Yet to Come" and that kind of thing, are very foreboding.

One of the things of course that happens with smog and with pollution is the cost to human health. We have the OMA now estimating that there are 1,900 Ontarians alone who die prematurely because of smog exposure. We have increasing levels of pollutants that have been shown to increase asthma symptoms, chronic bronchitis, respiratory hospital admissions, emergency room visits, acute respiratory problems, and the list goes on.

Recent studies on diesel—these are from gasoline and diesel—exhaust have shown that diesel emissions are in fact carcinogenic and do cause cancer.

We do have a solution on the next slide. It's an Ontario solution, and that is natural gas vehicles. I also emphasize for justice's sake that all alternative fuels offer certain qualities and should be considered in the whole equation.

Alternative fuels are a group. They include such things as ethanol, cellulosic or other; they include natural gas; they include propane; they include hydrogen. They include a whole host of alternative fuels that this group is charged with looking at. I know that transportation constitutes only a small part of your review, but it is a very, very important part to the citizens of Ontario.

The environmental benefits of NGV—and they are understated by Natural Resources Canada—for example, with volatile organic compounds there's a reduction of



93% over gasoline. Particulate matter is 89%, and in fact the only particulate matter that enters into the exhaust is that which comes from the oil which is lubricating the engine itself. Sulphur is reduced by 63% over the top gasoline available on the market today. Carbon monoxide is down by 74%.  $\text{NO}_x$  is down by 43%. And given Ontario's charge to co-operate with the federal government and work toward the GHG reductions and the Kyoto Protocol, carbon dioxide is reduced 23% and beyond.

The environmental benefits for Ontario alone—say that we had 1,000 NGVs out there in a taxi fleet. You're looking at 91.56 tonnes of VOC reduced each year as a result of those 1,000 taxis in service. If you look at the provincial fleet, which does a lot less driving, you're still looking at 19.6 tonnes of VOC. And of course the list goes on all the way down.

Carbon dioxide: a very inexpensive way on a cost-per-tonne basis to eliminate carbon dioxide is through natural gas vehicles. We're looking here at 9,639 tonnes of carbon dioxide in a taxi fleet alone per thousand NGVs.

#### 1030

If we move along to Ontario right now, there are close to 13,000 NGVs in service. We probably have close to 40,000 across the country, primarily in major urban centres like Vancouver, Calgary and—well, basically major cities across the country. All North American automakers right now, the OEMs, are making or assembling natural gas vehicles. It is state-of-the-art technology and that means that it comes warranted; it is reliable. It's certainly not the vehicles of the past where conversions of propane gave us a bad name and conversions of natural gas gave us a bad name. Those days are gone.

In terms of the types of vehicles, there are dedicated vehicles and there are bi-fuel vehicles. The dedicated that are made on the production line today are the Crown Victoria; the Ford E series, the vans; the F-150s, the F-250s, all the pickup trucks; the E series cutaway, which is for shuttle bus or box configuration—the list goes on again. Bi-fuels are primarily General Motors' products, although the Ford F series does have a bi-fuel. But Chevy Cavaliers and Silverados, the Sierra—all the GM lines carry bi-fuels. That means that it operates on natural gas first and then it defaults to gasoline, if you were to run out of natural gas.

In terms of refuelling, the alliance and the industry members have done a tremendous job in being able to overcome one of the barriers of infrastructure, and that is that in Ontario right now there are over 66—in fact, I think it's now 67 as we speak, there's another one being built, or 68—self-serve public service stations, which you drive into, attach your vehicle to the hose with the nozzle and walk away. Two or three minutes later you come back and it's filled up. There's an automatic shutoff system. It's extremely safe. There's probably no safer fuel available than natural gas.

There are 22 of these stations in the GTA alone. There are 50 to 100 private stations which have small compression units, at a stockyard or some kind of a car yard,

where a manufacturer may have his or her entire fleet running on natural gas vehicles, or courier services or taxis. They establish a small compression station of their own and they refuel at that.

There are 1,500 vehicle refuelling appliances. One of the other barriers that we got over was the fact that it was inconvenient to refuel; 1,500 vehicle refuelling appliances means that there are 1,500 individuals who can fill up at home or at their office or someplace which basically will house an apparatus the same size as an air conditioner. It's an appliance that attaches straight on to the gas pipeline. It compresses it and will give you a timed fill over six or eight hours or it will give you a fast fill if you have a cascade system.

Today we have some existing government incentives. We have the Ontario PST rebate referred to by Jeff of \$1,000 maximum. We have the federal MDIP program which is due to expire next year, come February. That MDIP program was actually a \$150-million or \$200-million fund which was given to the federal government by the Alberta gas producers about 15 years ago. It asked the federal government to be custodian of that money and to dish it out in accordance with finding new ways in which to market Alberta natural gas. That fund has now dwindled down to approximately \$4 million. Natural gas vehicles are the last benefactor of that fund, and we anticipate that the fund will be either exhausted or terminated come February next year.

The Ontario fuel tax exemption of 14.7 cents is a welcome relief, of course, for natural gas, as is the federal fuel excise tax exemption of 10%.

We have a tremendous industry base in Ontario, which is made up of auto plants, the alternative fuel research facilities, distribution, manufacturing and other NGV industries within Ontario. They include the major manufacturers; in fact, one thing this committee should know is that the expertise for alternative fuels, particularly for natural gas vehicles, is located and centred in the three auto manufacturers headquartered here in Canada for all of North America. That means that Oshawa, Oakville and Windsor house the expertise for alternative fuels and NGV technology resident here in Ontario and in fact in Canada.

There are still a couple of barriers to NGV which we need assistance in trying to overcome. Those barriers include the higher premium cost of a natural gas vehicle, because it is a different fuelling system. It does take about \$7,000 to \$8,000 more in terms of producing a vehicle off the production line and therefore there is a higher charge to that vehicle. At this point, the incentives that are applied by government and by industry and by utility companies, including Ontario, bring the cost down to about \$2,000, which can be made up in fuel savings over the course of a year or less, depending on the amount the person drives. Nevertheless, from a perceptual point of view, that \$2,000 or \$2,500 still represents a major barrier to a fleet manager saying, "I want to bring natural gas vehicles into this fleet." The higher premium cost, therefore, is one of the last remaining

barriers, as is the behavioural or resistance-to-change attitude of drivers.

What we are recommending therefore is that this committee take back to the Legislature, and discuss very fully, the enactment of an alternative fuel vehicle procurement act. I speak, I believe, on behalf of all the alternative fuel industry when I say we would love to have in Ontario a procurement policy where your fleets for your departments are aggressively going out and purchasing alternative fuel vehicles. They are convenient, the barriers have been knocked down; there is no reason not to except for the departments themselves finding reasons not to. We have found that the federal government has an act such as that, but it is toothless, it's weak and it has all sorts of escape clauses in it, which means that the federal government has not really performed up to what most people thought the Alternative Fuels Act could do with the federal fleet.

In addition to enacting that kind of a procurement policy, be it an act or not, we would also like to see you provide a full PST rebate on NGV purchases. That full PST rebate will not cost the Ontario treasury a tremendous amount of dollars. It will only be an additional, say, \$1,100 per vehicle and we're only talking in the neighbourhood of maybe 1,500 to 2,000, maybe 3,000, and as time goes on, maybe 5,000 or 10,000 vehicles. That is not a huge dent into the Ontario treasury and we would like to see that actually occur. The finance department and the environment department, to my understanding, are both behind that kind of initiative to increase that PST rebate. We would support that and would ask you to take that under consideration, as well, as a recommendation from this committee.

We'd also like you to start to think outside of the box or perhaps outside of this little square that we have here. We want to encourage some programs which are going to encourage people to pick up an alternative fuel vehicle and drive it. Such things that you have within the power or the scope of the Ontario government are fee-free access to provincial parks and reduced fees on the 400 series highways, particularly the 407, for an alternative vehicle. We do have examples of that occurring in British Columbia, we have that occurring in California, and in those states where alternative fuel vehicles are well thought of and are well along the way in terms of introducing into fleet use particularly, but into the general public as well.

We'd also like your support for such programs as the Metro Toronto taxi commission. They have extended the life of a taxicab by two years if it's a natural gas vehicle. A five-year life is allowed for a taxicab in Toronto, seven years if it's a natural gas vehicle. The reason for that, plain and simple: emissions.

In terms of supporting another program, we are presenting to the Ontario government, but particularly to the municipalities across the country, a concept paper on a program that I'm calling the Clear the Air program. What I would like to try and do is to have two objectives of this program come through the Federation of Canadian

Municipalities and perhaps tap into some of the green funds that they have, the objectives being to improve air quality across the country and to provide a cost-effective program wherein municipal fleets can purchase new NGVs to replace gasoline or diesel vehicles, and the way in which they can do that is on a repayable—from the fuel-savings point of view, be able to repay a loan for a fifth vehicle if they were to buy four. So they would basically be getting five vehicles for the price of four, and over the course of the first year or year and a half, depending on how far they drive those vehicles, it can be repaid by the fuel cost savings.

#### 1040

Conclusions: NGVs afford Ontario the ability to lessen its dependence on petroleum-based fossil fuels of gasoline and diesel. Ontario can lead the way to a gaseous-fuel future by supporting NGV today, technology which is ready today and used today and proven today. When I say "a gaseous future," we are all looking to a hydrogen economy 10, 15, 20 or 25 years from now. Natural gas is probably the best feedstock available. CH<sub>4</sub> has four molecules of hydrogen in terms of being reformed into hydrogen for a fuel cell or for hydrogen production. This leads the way in terms of a gaseous-fuel future, and certainly it's something that we should be considering today for our future.

I've gone through the advantages of NGVs, but of course they are reduced air pollution, net job creation for Ontario—the more NGVs in Ontario, the better it is for job creation—reduced health care costs and increased Ontario GDP by approximately \$74 million for every 1,000 NGVs on the street.

The conclusions are continued. The Ontario government has the opportunity to provide leadership in its responsibility to protect the province's air quality, which I believe is very important. We can witness what you are custodian over in terms of water, in terms of air and in terms of land. We believe this is one way in which you can show responsibility and leadership in your protection of the province's air quality in the future. The NGV industry appreciates the province's resolve to retain the incentives necessary to expand the use of natural gas, such as in the PST rebate, but we also encourage you to look at some of the recommendations in this report.

I thank you very much. I know I've probably exceeded my time.

**The Chair:** You're still OK, but we do not have very much time—about 30 seconds per caucus.

**Mr Jerry Ouellette:** Thanks very much for your presentation. A quick question: according to the Alberta Energy Board, natural gas production should peak by the year 2003 and then decline 2% per year after that, while the US energy board predicts that by the year 2015 the natural gas demand is going to increase by 45%. How are we going to fulfill those demands now? New pipelines don't expect to be coming on until about 2008 or 2010, and they will only replace the current stocks in place now. How are we going to fulfill that demand?



**Mr McNeil:** I believe it's quite possible and plausible that we will see huge reserves of natural gas tapped that are unknown at this point. One of the things I found interesting about the study was that they did not have any indication that Ladyfern, for example, in northeastern British Columbia was as huge or as wealthy as it is in terms of natural gas. In terms of natural gas supply, I have seen forecasts which say we are going to run out and I have seen forecasts which say that we have so much we don't know what to do with it and we will have for the next 100 years. Frankly, I don't know who to believe.

What I am trying to do is bring that into perspective and say that in the here and now we have adequate—in fact more than adequate—supplies, we have storage, we have huge reserves and we have offshore reserves we haven't even tapped into yet. I believe that we certainly have a lot more natural gas than we do petroleum products for making gasoline.

**The Chair:** We'll move on to Mr Parsons.

**Mr Parsons:** That's fine.

**The Chair:** Ms Churley?

**Ms Churley:** Just thank you for your presentation.

**The Chair:** Thank you. It was much appreciated.

## HEALTH CANADA

**The Chair:** We'll move on to our last presentation for this morning before we adjourn to London, and that's Barry Jessiman from Health Canada, if you don't mind coming forward at this time. Please state your name for Hansard. You have 20 minutes for presentation and questions and answers.

**Mr Barry Jessiman:** Barry Jessiman, Health Canada. Thank you for inviting me. I hope I can provide some useful information to you. The purpose of my talk is to present the approach Health Canada takes to assessing fuels, including conventional and alternative, and to try to give you a sense of the challenges that exist in getting a grip on the health consequences of making these choices.

Very briefly, Health Canada has been doing risk assessment for air and other types of pollutants for some 40 years. This program was developed about 10 years ago as part of the air health effects division of Health Canada. Overall, the program is designed to provide an assessment for both ongoing issues, today's issues, and to try to anticipate the types of issues we will face given potential new alternatives. It splits its time between those two. We have a host of issues that are very topical, with ongoing impacts, and we have equal emphasis on what we think will be some of the future alternatives. We're hoping to get ahead of the issue rather than playing catch-up, the way we are with some of our conventional fuels today.

As I said, this is part of a larger program to assess the health effects of air pollution within Health Canada. The goals of these assessments, which look at all the scientific literature we can develop or find, is to either

make a judgment where we feel there is sufficient information, make a judgment about a particular substance or fuel, or to trigger further investigation, and that is largely to trigger research to fill gaps we've identified in our assessment and which are critical to coming to a reasonable conclusion about a substance.

Just to give you a sense of how we go about this, it's a two-pronged approach to, first, trying to understand the inherent toxicity of a particular compound or fuel. This is the first approach to understanding just how potentially toxic a substance or a fuel is. More important even, though, is understanding the toxicity of the combustion products, because, hopefully, in most modern systems most of the fuel is combusted and we're not really exposed to a lot of it. The major exposure is to the combustion products of the fuel itself.

Now we come to the hard part: estimating exposures. Even for currently used fuels, it's very difficult to estimate the exposures, given the enormous range of situations people find themselves in and the huge variety of activities that people engage in. So this is a very daunting task, and it usually occupies a major part of our assessment process. Because we often don't have the data, and especially for alternative fuels and future fuels we simply don't have any monitoring data, we rely to a great extent on modelling and understanding the interaction of chemicals in the atmosphere and the way in which people are exposed. That has become a major part of our efforts. It is data-rich. It requires an awful lot of either input data or assumptions and, while we make the best attempt to have the best data, we're often feeling about in the dark with that and there are significant uncertainties in this area.

Finally, we combine those two things and try to estimate risks, the essential risk of both the fuel and the combustion products. Where we're comparing alternatives, we can also in the same process estimate benefits. That's the flip side of this coin, that some alternatives present us with some quantifiable benefits. Our goal is to try to lay out both sides of the equation, both the benefits and the risks that we entail in moving to newer or altered fuels.

There are essentially three types of things we deal with in this. The ongoing efforts generally revolve around either additives to fuel or reformulations of fuel. One example of an additive is MMT, a manganese-based fuel additive added to gasoline in Canada to increase octane, which has a very good database, relatively speaking, for a chemical. There are, however, continued public concerns over it and quite an aggressive research campaign on the part of the manufacturer. So there is a host of new data, and certainly it's a fairly high-profile issue based on the letters I get to my minister.

### 1050

There is another compound, cerium, which is a very new compound. It has a lot of analogies to MMT in that it is, in this case, a substance that is being proposed for addition to diesel fuel which appears—it's only in the testing phase—to dramatically reduce particulate emissions, a very big concern with diesel fuel. However, the toxicological concerns for cerium appear to have been

dismissed with a single test that showed no effects. But it's not a very comprehensive database in the understanding of toxicology, so here we have what look like some great benefits and some unknown risks. We've made mistakes in the past, and this program is to try to at least identify where we should be doing investigations. There is a whole host of other additives being proposed. Technologically, they all appear to have great benefits, but the risks are often understated or unknown.

Reformulations: I've heard MTBE mentioned. It's quite an interesting, apparently simple substance, and I'd like to use my next slide as an example of the type of situation we face with these. It's an addition, a sort of 10% addition to gasoline that raises octane ratings, and at least in the early days it dramatically reduced certain types of air pollution.

Sulphur, on the other hand, is something you want to remove from gasoline. It's a natural component of crude oil, and unless you take specific steps, the sulphur is transferred from the crude into the gasoline. We have new regulations coming on soon to basically bring us down to very low levels of sulphur. Again, it has extremely beneficial aspects in that sulphur is a definite poison for catalytic converters and destroys the ability of catalytic converters to function properly.

Then we get into the alternatives that we are assessing or planning to assess. We've been looking very recently at a growing debate in California between natural gas and so-called green diesel. There are very strong proponents on both sides. This is again one of these where we'll see both benefits and costs associated on the health side. So we need to address these. We need to take it out of the realm where there are proponents involved and try and get a better handle on the health aspects of it.

We've been very extensively looking at the electric vehicle and the potential for it to benefit air quality. We also anticipate looking at fuel cells as more information becomes available. It's currently highly hyped but there's no information on which we can base much work, but we're in anticipation of that.

Finally, while it's not an alternative, the ULEVs, ultra low emission vehicles, are an interesting aspect in that the current vehicle manufacturers aren't really interested in giving up their markets and they've been really working to develop the current engines, the current technology, into an extremely low emission vehicle. That's certainly been pushed in California.

Just very briefly, as an example of the complexity of these issues with MTBE, it's an ether that's one of many ethers that were designed to be added to gasoline to reduce especially carbon monoxide, but also the precursors to ozone and other smog components. It looked very simple. It was a nice, simple process to follow at the refinery and it's been used very effectively for many years.

Unfortunately the flip side, which was not examined early on, is that it's seemingly a not very toxic compound but a very smelly one. It tastes bad and it has an extreme odour at very low levels. As underground storage tanks

will tend to do, they leak, and in California especially they have destroyed the drinkability of several underground aquifers on which California is especially dependent. As was mentioned, California is banning this substance because of that. Many other states are trying to follow suit.

It's become a NAFTA issue. The manufacturer of one of the methanol pre-components of MTBE is suing the United States government for \$1 billion. A seemingly very innocent little substance has become a bit of a cause célèbre in the whole area. So here's an extremely simple situation that has blown up into quite an enormously complex issue, mostly because it was pushed before there was enough information available to assess all its potential risks. We should have been able to anticipate this problem.

In true alternatives, we divide them into two areas. The first, and to some people the Holy Grail, is zero emission vehicles. They are zero at the tailpipe but not necessarily zero. In some cases, specifically right now for electric vehicles, the electricity comes from somewhere. It's very clear that the potential benefits and the increased risks are to a certain degree dependent on the electricity generation grid that you have. In some areas you can have a very large fleet of electric vehicles without increasing the emissions from your power sources while in other cases that does not appear to be the case.

When we looked at electric vehicles, and what we're looking at now, we initially tried to scope out all the issues we thought should be dealt with. So there were electromagnetic fields. That was certainly the first thing that sprang to my mind: are electric vehicles going to have a big electric field? It turns out that's not true and it would appear that the whole EMF issue is not a concern with electric vehicles. But I thought major parts of the population would consider that an issue, so I wanted enough information out there for everyone to be able to consider, and that will be part of our assessment.

These cars are heavily dependent on battery technology, and the batteries are not infinitely lived, so how do we deal with the recycling of batteries, the manufacture? Additionally, most people have told us that for an electric vehicle to be really viable, it requires a different type of battery using different chemicals than we currently have. The anticipation of those different chemicals being disposed of in use and manufacture needed to be addressed. So we've taken our first stab at that. What would be the battery of the future has not been decided, so there are still some issues there.

Noise, I thought, would be a very important issue from a sociological point of view. I don't like a lot of noise. I love a quiet environment. It turns out that it's the wheels on the road that cause the noise, not the engine. So electric vehicles on a major highway are probably not a lot quieter, except inside. Outside is not a big deal.

Finally we came to our central issue, which was, what's the effect on urban air quality going to be, because in our research program and in our risk assessment program we're really focused on smog and smog-forming



chemicals. Zero emission vehicles are certainly viewed as a major potential for reducing in a dramatic way urban air pollution. This is where we're in the midst of looking at this through both modelling and the monitoring system for air pollution that exists in Canada. It's a very complex issue. We've had to go back. We're on our third round of trying to solve the issues around the unknowns. It's a very complex issue. It is very dependent on the power grid. I think we have about two years to go just to get our first answers that can be spoken of in the light of day because it is a very difficult issue with a lot of uncertainties.

When we come to fuel cells, this is a very future-looking, anticipatory idea. There are a lot of novel chemicals involved. If fuel cells come about there is still no clear decision on which fuel cell, a chemically-based fuel cell or a proton membrane-based fuel cell, will come to the fore. It certainly presents issues around occupational exposure of workers. Much like the battery issue, will there be disposal/change-out issues as the vehicles age? These are issues we're waiting to a certain degree for additional information on and the technology to evolve before we move forward.

The early anticipation was that fuel cells would be run off reformers and use a liquid fuel to derive their hydrogen. There is as yet no information that we can access to find out if there will be emissions from those types of reformers and what they'll look like. So that's anticipatory, one that we see coming up in the next five to seven years.

The other zero emission or low emission alternative—this is more I think what I've heard a lot of the presentations discuss—the one that's certainly a very hot topic right now in the US and has come here very recently based on inquiries we've had, is the issue of green diesel versus compressed natural gas. Heavy-duty trucks can run on both. There are proponents for both. Green diesel is based on a very low sulphur fuel with quite an impressive change to the technology: a lot of add-ons, particle traps, catalytic converters, things that don't exist on the heavy-duty fleet right now. It does dramatically reduce diesel emissions. What it does is bring it down to something in the order of an ultra-low-emission vehicle and CNG. So there's a big debate, powerful forces on both sides.

Again, we're trying to get at what are the essential health issues that need to be addressed, because a big component of all of these things is not what comes out the tailpipe but what forms in the atmosphere afterwards. There's very little tailpipe emission of particulate matter and no tailpipe emission of ozone. It's the precursors to those two substances with which Health Canada is occupied in its risk assessments. The formation afterwards in the atmosphere is at least as important and possibly more important than tailpipe emissions.

1100

The Europeans are very focused on biodiesels as opposed to—well, not as opposed to green diesels. They're pushing forward on both fronts. Biodiesels are

very different from diesels in that they're a much more pure compound; they're based on crops and the derivation of a diesel-compatible fuel from them. They have very novel combustion products as opposed to diesel. It's a very different substance, seemingly much cleaner, but some of the substances are very different that come out of the tailpipe. Their contribution to smog formation is quite different and that has to be looked at.

Finally, alcohol-based fuels: we certainly get reduced emissions in these, and they are renewable. The renewable/non-renewable debate is a major component of all of these things, something we don't deal with directly but that we like to raise in our assessments in terms of an issue that needs to be addressed in the wider sense. It does reduce conventional pollutants but, in all the cases we have examined, there are increases in other pollutants and usually in ones that we have not addressed that are not part of the normal assessment process because they are very unusual or simply at very low levels and not a current risk.

So two of the substances that are produced by the combustion of alcohol-based fuels have just been assessed under the Canadian Environmental Protection Act and have been declared toxic. However, the levels from the burning of alcohol-based fuels are not very large, so we have to take a look at what the actual risk to the population would be. It may be minimal. However, it bears looking at.

Finally, we try and provide these in order that a full life cycle assessment can be done. There are others. We work with Natural Resources Canada, the National Research Council and Environment Canada on an ongoing basis to try and get a larger picture, to put these in a larger picture.

Finally, there's no doubt our current transportation system has some pretty significant impacts. I believe I saw an assessment recently that over 50% of our cities is devoted to vehicles. It can't help but have an impact on your city if that's the way your society has evolved.

Replacements have to be assessed in a forward-looking manner. We've been caught in the past. MTBE happens to be a fuel example, but we have examples all over the place in housing and other areas, sort of a single, strong driver pushing us a little too fast and not enough time devoted to some underlying issues that needed to be developed. We also have to recognize, finally, that we have limitations in just how far forward we can see, and that has to be incorporated in any of our assessments.

Thank you very much.

**The Chair:** Thank you for the presentation. We've just about used all the time, but maybe 30 seconds per caucus just to quickly move around statements or questions. We're starting with the official opposition. Mr Parsons? OK. Ms Churley?

**Ms Churley:** Lots of questions; no time to ask. Can we find out the results of some of your studies on the Internet? Is there more information we can get on some of these issues?

**Mr Jessiman:** Yes. Our Web site just came up in the last four months, so it's fairly data-rich and a little difficult to interpret at the moment. It's heavily influenced by the science, but that's going to evolve. But I will—

**Ms Churley:** Is the Web site address—

**Mr Jessiman:** It's not in the presentation, but I'll leave you my card.

**Ms Churley:** Could you? Thank you.

**The Chair:** And to the government.

**Mr O'Toole:** Thank you very much. The issue of octane enhancers and their impact on the environment: you briefly touched it with MTBE. How about Canada's position on MMT as part of the octane enhancer group? What's the federal government's position on that? It's actually another product that is quite negative to human health and banned in other jurisdictions.

**Mr Jessiman:** Unfortunately that's about a 15-day conversation, but we've been heavily involved—

**Mr O'Toole:** Is the federal government encouraging it or trying to find ways to eliminate it?

**Mr Jessiman:** I'd say neither. Health Canada did a risk assessment and we're involved in our fifth risk assessment of MMT at the moment. Our fourth one in 1994 found that the exposure in Canadian cities did not exceed the toxicological limit, so we felt there was no added risk. It's not MMT itself but the combustion product manganese that was at issue: neurotoxin at high levels and an essential element at low levels; somewhere in between is the safe limit. What we have found to date, and our findings pretty much stack up with the World Health Organization and the US EPA, is that the level of exposure does not exceed the level of toxicity.

**The Chair:** I believe, from discussion with your office, your background is toxicology?

**Mr Jessiman:** Yes.

**The Chair:** It's interesting, putting it in context with that background. Thank you very much for your presentation.

The committee now will be adjourning to London.

## COMMITTEE BUSINESS

**Mr Gilchrist:** On a point of order, Chair: Given that we have set ourselves a very aggressive time frame and we pretty well filled the days, what I'd like to do is put a motion on the floor that we can consider while we're in transit to London and then perhaps pick up at the end of the day.

Recognizing that we have seen two months pass since the creation of the committee, it's critical that we now move to the research stage. To that end, you will recall that at our first meeting I raised the issue of assigning a specific technology or aspect of the project to each member. In this way, we could multiply the speed at which we fan out to meet researchers, corporations or other potential contributors by a factor of eight and, hopefully, we could finish the data assembly portion of the project before constituency week in November.

Therefore, I move the following:

That the clerk and the Chair, with input from legislative research, ministries and the committee members, create a list of all sites (factories, research facilities, universities, energy sources) worthy of a visit by the committee within Ontario; and

That the list be circulated to the committee members before September 7 with a request for expressions of interest; and

That for research to be performed outside of Ontario, each member of the committee be assigned one or more components and, with the assistance of legislative research, develop a research plan that would ensure that all site visits and interviews were completed by November 10, 2001; and

That the different components to be assigned would be:

Wind, solar, biofuels (biomass, biodiesel, ethanol), landfill gas, waste incineration, waste oil, geothermal (deep mine, deep water, heat pumps), hydroelectric, nuclear, district heating concept, hydrocarbon (shifts within range of petroleum products, use of additives), hydrogen/fuel cells, plus conservation strategies and financial impacts and strategies; and

All members of the committee would be encouraged to participate in all aspects of the draft report production after the research has been compiled; and

The clerk and legislative research shall work with each committee member throughout the period of the research and, at the discretion of any committee member, may, along with the committee Chair, be requested to participate in any site visit, interview or other research.

I'll leave the motion and perhaps we can stand it down until we have had a chance to consider it in transit. Then I would propose that at the end of business today in London, where we have the greatest flexibility, perhaps we could debate the motion.

**The Chair:** I trust, in discussions with both your colleagues as well as with opposition members, you might consider some friendly amendments here if necessary?

**Mr Gilchrist:** Absolutely. As I say, I'm proposing the motion here. I expect it to be receiving fulsome debate later today if we get a chance.

**The Chair:** Thank you very much. Anything further? No.

We have a bus waiting. We will leave when everybody is on the bus or at 11:30, whichever comes first. We won't wait past 11:30. We are now adjourning to the London Convention Centre and we will resume at 2:05 in Salon A of the London Convention Centre.

*The committee recessed from 1109 to 1410 and resumed in the London Convention Centre, London.*

## IAN ROWLANDS

**The Chair:** We'll call the meeting to order once again. We just left Ottawa and are getting the select committee rolling once again.

Our first presenter is Ian Rowlands. I have 15 minutes for individuals, 20 minutes for groups, so you have 15



minutes for presentation and questions and answers from the various parties. Go ahead, Ian. Sorry that everybody isn't here but they will be.

**Dr Ian Rowlands:** Thank you, Mr Chair. Mr Chair, committee members, my name is Ian Rowlands. I'm a faculty member at the University of Waterloo, but today I'm speaking in a personal capacity and not on behalf of any organization with which I'm affiliated.

First of all, thank you very much for the opportunity to speak with you today. I'd like to begin by bringing your attention to an astute observation made by a colleague south of the border. A US political philosopher observed that the citizen in him is often in conflict with the consumer in him. Now to my knowledge Mr Sagoff, the political philosopher I'm referring to, is no more schizophrenic than the average North American. He's simply reflecting upon the apparent contradictions in his life. While he wants environmental protection and sustainable development, all too often his purchasing actions do nothing to further these ends. Indeed, he points to the "Ecology Now" bumper sticker on his oil-leaking car as a perfect example of such tensions in his life.

How might Mr Sagoff reconcile these differences? Well, British political theorist John Dryzek has a suggestion. Mr Dryzek, observing Mr Sagoff's car dilemma, says, "The citizen in him would like the government to crack down on the consumer in him." I'd like to argue today that Ontario residents about to participate in an open and competitive electricity market will soon experience similar contradictions in their lives. Although they'd like to improve the environment and advance sustainability, they look set to search for the cheapest product once the marketplace is open. Because conventional and polluting fuels used to generate electricity are usually the cheapest for the purchaser, individuals' actions will serve to degrade the environment.

I believe there exist, however, many opportunities and many ways in which the government of Ontario could help the people of this province ease these internal tensions and increase the use of alternative fuels in the electricity system. Please allow me to develop this argument.

At present there's a high level of concern about the environment in Ontario; numerous surveys suggest that. I have, on the outline I've distributed to you, reference to our own work in Waterloo region, which confirms that as well. I would like to suggest to you that this is the Ontario's public's "Ecology Now" bumper sticker. Like Mr Sagoff, to whom I referred, this citizen in most Ontarians wants a healthy environment, and included within that is an electricity system that makes extensive use of alternative fuels and thus serves to advance sustainability.

I'd now like to turn more directly to some survey results we have from Waterloo region, which are described more fully in the first article I distributed to you. We asked residents of Waterloo region the following question: "Rank how important each of the following factors will be to you when you're able to choose the company that provides your electricity." We then gave

them six factors to rank: price of the electricity, customer service, that the electricity is generated locally, environmental impacts, reputation of the company and reliability of the electricity.

Documented in that article are the 384 complete responses we received. The factor that was ranked highest by most respondents was price of the electricity. Almost 40% of respondents ranked it as number 1; another 26% ranked it as number 2. Thus, two out of three said that price will be the most or second-most significant consideration when choosing an electricity provider next year.

What kinds of electricity will be cheapest for the individual? Well, the ones using conventional fuels that are the most polluting. Let me explain why. It's widely accepted that the private costs of generating electricity don't always equal the social costs of doing the same. For the individual consumer at home—Waterloo North Hydro is who I get my electricity bills from—the price on the bill may say something like eight cents or 10 cents per kilowatt hour. That is the price to me as an individual consumer, and that's what I pay. The argument that many have developed is simply that this doesn't capture all of the prices of the power that's being produced. The so-called externalities imposed by some methods of generating electricity, for example, the increased health care costs associated with coal-fired power, aren't captured on consumers' electricity bills. Instead, they're captured on the bills paid by citizens as a whole, perhaps through higher taxes.

In our provincial system, therefore, it appears that the consumers' cheapest electricity sources will be those conventional sources that are most harmful to the citizen. I'd like to suggest that this is the Ontario public's oil-leaking car. Like Mr Sagoff, the consumer in most Ontarians is set to search for the least costly product, which happens to be the most environmentally damaging.

What's all this mean? I'd argue that it means there's a gap between what the Ontario public wants and what the Ontario public is set to do. Ontarians have environmental goals, but their respective purchasing actions in the restructured electricity market won't serve to advance these goals.

Let me conclude by saying something about some of the strategies that are available to try to close the gap between citizen aspirations and consumer actions. The final paper I distributed to you today reviews a number of different strategies in our broader work in Waterloo region on residential energy efficiency and sustainability. Indeed, seven are enumerated with examples given there. The one I'll just pull out for the sake of demonstration is the so-called renewable portfolio standard, or the RPS. An RPS is a requirement that a minimum percentage of each electricity generator's or supplier's resource portfolio comes from renewable energy. For example, if a company wanted to use natural gas in the new marketplace, it would be obliged to facilitate the creation and the use of green electricity sources as well. By using

market forces, an RPS can encourage greater development of alternative fuels.

The thing that strikes me as interesting about an RPS is that it's being used in many jurisdictions around the world, and it seems to cross over whatever ideological divides there might be, as states as politically and culturally diverse as Massachusetts and Texas have both adopted an RPS as part of their sustainable energy strategy.

My emphasis again upon it is not to suggest it's the be-all and end-all but simply to flag it as one representative strategy among many that has the potential to increase the use of alternative fuels in our electricity supply mix and to move us toward sustainability.

In summary, members of the committee, Mr Chair, I've identified the gap between citizens' desires and potential consumer action with respect to the upcoming opening of Ontario's restructured electricity system. I've also highlighted some strategies that exist for closing that gap. Without any action, I think Mr Sagoff's Ontario cousin will undoubtedly choose to drive the proverbial oil-leaking car in the new electricity marketplace, if you are able to stick with my imagery on that. We have, however, an opportunity to take action so he won't feel financially obliged to do so, and with a bit of help, he can be truer to his "Ecology Now" bumper sticker aspirations.

My understanding is that this committee is in a good position to try to catalyze and stimulate debate about various strategies to encourage increased use of alternative fuels in a more sustainable electricity system; I encourage the members of the committee to do so. On the cover sheet, my contact details are listed at the bottom. I'd be happy to try to answer any questions at this point or at a later date. Again, thank you for the opportunity to speak with you today.

**The Chair:** Thank you for a rather interesting presentation as you comment about citizen desire versus consumer selection. I think you put that in an interesting sort of nutshell for us. Thank you. We have about two minutes per caucus for questions or comments.

**Mr Jerry Ouellette:** You mentioned the survey you did. What percentage response did you receive on that?

**Dr Rowlands:** The survey response rate was of the order of 43%.

**Mr Jerry Ouellette:** How did you determine your sample selection?

**Dr Rowlands:** It's a biased sample selection, and the description of the bias is in the associated paper. If I may just make one follow-up comment.

**Mr Jerry Ouellette:** Sure.

**Dr Rowlands:** People who replied to the survey are involved in our home energy efficient program in Waterloo region, so generally they're a wealthier, more educated and slightly older population.

1420

**Mr Jerry Ouellette:** Have you looked in any other sectors at all?

**Dr Rowlands:** We'd like to. In the continuing research, we're going to take a sample from the dreaded

Waterloo region phone book and see how those results compare with this sample.

**Ms Bountrogianni:** You mentioned in your survey paper that Texas has introduced protected markets for renewable energy. Can you just talk a little bit more about that, about the Texas model?

**Dr Rowlands:** Certainly. I don't know the exact details. The organization that has categorized a lot of these is based out of North Carolina with the initial DSIRE. Basically it has of the order of 2% to 3% protected market for renewable energy, and different states are taking different tacks on it. Some are suggesting that they should be playing to the particular comparative advantage within their region. Nevada, for example, is looking at solar in particular. Others are ratcheting it up slowly over a period of years. That's what Massachusetts is doing as well. Texas has a lot of interesting work going on in wind power in particular down there.

**Mr Parsons:** In some ways I'd like to sit down and talk to you for a couple of hours, rather than 20 minutes. In terms of electric consumption in Ontario, if I'm remembering the numbers right, the residential houses are relatively small players. It's about 100 large industries that are the consumers of electricity. With the concern you've expressed that it be environmentally sound electricity, have you any sense, have you had any talks with industry that would indicate that they have the same concerns or attitudes?

**Dr Rowlands:** Personally, we've had some support and interest on the part of industry in Waterloo region on our activities; I'm not saying in premium-priced green electricity explicitly. I can refer to the broader North American examples where premium-priced green electricity has been available and there have been instances when companies have chosen to pursue that route. In my own community, Cambridge is the only place that is able to offer green power right now, and Toyota was one of its customers for the premium-priced green power.

**The Chair:** Ms Churley, did you want to—

**Ms Churley:** I just wanted to apologize for missing your presentation.

**Dr Rowlands:** That's fine. There are documents available. If there are questions, feel free to get in touch.

**The Chair:** Thank you very much for your presentation. We appreciate your coming forward. It's interesting how you've packaged that.

**Dr Rowlands:** Thank you. I wish you luck in your deliberations.

#### ONTARIO CORN PRODUCERS' ASSOCIATION

**The Chair:** Our next presentation is from the Ontario Corn Producers' Association. The names I have are Doug Eadie, David Start and Terry Boland. Two of you are here. Maybe you could state your names for the sake of Hansard as you start. As an association, you have 20 minutes. Anything that's not used up in your presentation



will be divided among the three caucuses for questions and comments.

**Mr Doug Eadie:** Good afternoon. We appreciate this chance to make this presentation on behalf of the Ontario Corn Producers. My name is Doug Eadie. I chair the market development committee with the Ontario Corn Producers and am actually a corn producer from southern Bruce county.

On behalf of Ontario's 21,000 commercial grain producers, I'd like to thank you for this opportunity to meet with you today to discuss the enormous task before you as the Ontario Legislature's select committee on alternative fuel sources. In particular, may I welcome you to Middlesex, one of Ontario's largest corn producing counties.

Not far away from this convention centre corn is being grown that will find its way into your gas tank, if you buy ethanol-blended fuel, and for us, that is the bottom line. Producing an environmentally beneficial fuel for Ontario's travelling public benefits not only the environment in so many ways but also creates jobs and economic activity in smaller urban centres and our rural communities.

The Ontario Corn Producers' Association has been a major proponent for the development of an ethanol industry in Ontario. It has taken us almost 15 years to have ethanol produced and sold in this province. Along with our partners in the industry and with the strong efforts of the Canadian Renewable Fuels Association, we have been able to offer consumers a renewable, environmentally beneficial alternative to the status quo.

Today you can get ethanol blended fuels in most locations across the province at prices comparable to gasoline. Those are the two most important factors in consumer purchases of fuel: price and availability. But with ethanol in a 10% blend, you get the added benefits of: reducing smog, smog, smog—you'll notice it's down there three times, because that's how important that is; I'm sure all of you drive in and out of Toronto many times, and especially in a summer like this you experience it—30% lower carbon monoxide emissions; a net reduction of 6% to 10% in carbon dioxide emissions; lower particulates; replacing the octane loss created by lower sulphur content in gasoline; reducing greenhouse gases; twice the energy value in the product as it takes to produce it; meeting RVP standards through tailored blending—RVP is a vapour pressure standard—replacing other aromatics in gasoline deemed harmful to consumers; being an oxygenate, allowing for a more complete burn of the fuel; providing octane for high-performance fuels; extending our dwindling crude oil reserves; and avoiding dangerous high-seas tanker transport.

For those of you not familiar with ethanol, please do not confuse it with methanol. That's a common error. Many people, I'm sure most of you here, are familiar with what ethanol is. It is a biomass-based renewable fuel that is added to gasoline in a 5% to 10% blend. Methanol, on the other hand, is a derivative of natural gas.

Ethanol is an alcohol made from renewable resources—I stress the word "renewable"—like corn and wheat. Grains are processed with enzymes and the mash is distilled to produce a high-quality alcohol. In addition to being a high-quality, environmentally beneficial and renewable fuel, ethanol also has the added benefit of being a natural gas line antifreeze.

In North America, ethanol is primarily made from grain corn, but with the growing demand in the United States, and also Canada, for that matter, for ethanol, due primarily to the removal of MTBE from gasoline, other biomass feedstocks are being widely considered.

You probably heard a presentation from Iogen if you were in Ottawa today. They, of course, are talking of using wheat straw. I know they did work with corn stover and also soybean straw. You probably heard a presentation on that from a non-grain-producing feedstock.

I'd like to take a minute now to dispel some of the myths surrounding corn production for ethanol. Will it increase pesticide use? No. Ontario farmers have reduced pesticide use by 42% in the last 15 years and adopted best pest management and crop rotation practices. Will it result in more energy use on the farm? No. Ontario farmers have adopted and continue to adopt low- and no-till farming, requiring substantially less energy use. Will it harm the land? No. Ontario farmers, through no-till, have allowed substantial crop residue to remain in the field to build soil organic matter. Pesticides and energy are costly inputs, and in this day and age of farming, reductions in the cost of farming are mandatory.

The Canadian government has already indicated, as part of its greenhouse gas reduction policy, that it wants to increase the use of ethanol blends in Canada to 25% of the national fleet. That means producing one billion litres of ethanol per year. Today Canada produces 234 million litres per year, mostly in Chatham and Tiverton, Ontario. Another production facility is close to construction in Cornwall, Ontario.

Ontario is well placed to fill the 766-million-litre gap, with substantial benefits in job creation, spinoff employment, on-farm activity and rural economic development. In Ontario today, ethanol utilizes 17.5 million bushels of corn, worth almost \$57 million to farmers each year in direct sales and an increase in the basis for Ontario corn. It creates jobs in plant operations and local economic spinoff activity. It helps to diversify and secure economic wealth for our smaller towns and cities, and rural communities.

#### 1430

We would like to thank the Ontario government, and over the past 10 years this includes all parties, for financially supporting the development of ethanol production facilities and providing incentives to allow renewable energy into a marketplace at a competitive price set by others. Still, it has been a rough road, taking over nine years to bring the ethanol plant in Cornwall, for instance, to the point where construction should soon begin. If we plan on seeing the necessary change in our lifetimes

envisioned by this committee, we will need to make those changes happen, not just hope they will.

As you are aware, or will be after the submissions from participants in these hearings, the introduction of any new fuel will have a cost. It is a matter of volume of product, widespread availability of appropriate vehicles, pricing, availability and consumer acceptance. Ethanol has made great strides in these areas. I might add, up to a 10% blend there is no change needed in any cars or trucks manufactured for the world market today.

But government has a significant role in the last point, consumer acceptance and use. No matter how hard we try and explain the benefits of renewable fuels and dispel the myths created by others, consumers are always leery of veering off the status quo. This is a barrier to all new fuels or power options. You are trying to change the buying habits of millions of drivers on equipment purchases and fuel options.

In 1998, the Ontario Legislature considered Bill 34 proposed by Jack Carroll, an amendment to the Environmental Protection Act, that would have required 2.7% oxygen content in gasoline in Ontario. Unfortunately, the private member's bill only made it through the committee stage, without amendment, before the Legislature's session was prorogued.

Government must not only take a leadership role, but do it forcefully. Past governments have promised provincial procurement policies for ethanol-blended fuels but they never materialized. They promised assistance in consumer awareness, even announced a program, but it never actually materialized. This committee has the opportunity to send a clear message and set a new standard in addressing air quality issues.

Ethanol can play and is playing a role in improving air quality. We are slowly seeing more and more fuel distributors, including some major oil companies, embrace ethanol for fuels for both its octane value and environmental benefits. Yes, you can clear the air and have economic benefits at the same time.

We must express our thanks to companies such as UPI Inc, who, as pioneers, have taken the bull by the horns and challenged the status quo with new environmentally beneficial products, such as ethanol-blended fuels. Last week, UPI opened their first enviro-station at Woodstock, placing fuel storage tanks and piping for fuel above-ground, reducing the potential for leakage into the water table and providing for easy site remediation. The double-walled tanks, armed with sensors, alert operators to any problem, allowing for easy tank replacement. Our congratulations for the innovation on behalf of the environment.

Once again, on behalf of Ontario's corn producers, I would like to thank you for meeting with us today and allowing us to discuss the renewable option for transportation energy, fuel ethanol. We wish you the best of luck as you venture into the maze of energy options, and through your wisdom may we all have cleaner air and a cleaner environment for our children and grandchildren.

Thank you, Mr Chair and members of the committee, for this opportunity.

**The Chair:** Thank you very much for the presentation. We have hardly three minutes per caucus, so we'll start with Ms Churley.

**Ms Churley:** Thank you very much for your presentation. You're right; we did hear presentations on this this morning in Ottawa as well. Certainly, as you said, our government—I'm with the NDP, as you know—helped kick-start this industry, and the present government has continued with some policy. I guess now the question is, and you mention it, what do we have to do? What's the single most important thing this committee can recommend to the government to do to increase the usage of ethanol by consumers?

**Mr Eadie:** I suppose one of the top priorities, of course, is the awareness issue and helping spread the news, the information that there will be an environmental impact.

Another area that goes hand in hand with that is that the financing of these plants is a huge undertaking. We're probably at a point in Ontario much like the state of Minnesota in the US was a while ago. They had a great desire and need for more plants. They actually legislated mandatory ethanol blends in Minnesota. There the state helps support what they call new-age cooperatives in the construction of plants which are farmer-owned. They require no subsidies if you look at it from a point of direct subsidies. So there are some financing options.

Terry, you might want to add any others that come to your mind.

**Mr Terry Bolland:** One thing we talked about in the brief was procurement policy. I think this shows leadership on behalf of government by buying ethanol-blended fuels as part of their policy within different ministries, by using E85 cars, which shows the public that you accept the viability of the fuel, the viability of the vehicles, and show some leadership in taking that one step further and suggesting that they buy these vehicles or they use these fuels.

If you cannot convince the public that it's available, that it's acceptable and that it's priced within their range, then I don't think any fuel here is going to have a chance at all of making it into the marketplace, because you're going up against a huge oil industry. Let's face it, they have a lot of clout. They go for lunch and I could use that budget for the entire year for public relations. That's about where we're at. We're talking big dollars here and we can't compete against them.

**Ms Churley:** That's helpful. Thanks.

**Mr Hastings:** Do you see only, then, a subsidy-based approach to getting this done, either through mandates or through mandatory requirements and purchasing by municipalities; in other words, that you have to make it a law to do it and it won't work through a market-oriented approach in and of itself?

**Mr Bolland:** If you look at the United States where they put in the Clean Air Act, there are certain areas of the country where high pollution takes place, high carbon



monoxide emissions, and they are required through mandate and from the Environmental Protection Agency to put so much oxygen content in gasoline to try and abate that carbon monoxide problem. So, yes, in some cases there will be requirements to legislate in high areas. Maybe Toronto is one of them, or Vancouver or other cities in Canada.

We've never been favourable. We like to see the marketplace do it, but when you're up against companies that see you as displacing their refining capacity, they're not willing to give it up. So we have a tough time getting into the marketplace.

**Mr Hastings:** What do you think has changed, if anything, in terms of the attitude of the Canadian Petroleum Products Institute, the Ontario branch?

**Mr Boland:** I don't think they've changed at all. The companies may have changed individually—

**Mr Hastings:** Yes, I think that's true. Some have.

**Mr Eadie:** Actually, if you look at the Kyoto agreement on greenhouse gas emissions, if it was going through as it was laid out and had the backing of the United States to the extent it should have, then I would say within a matter of a very few years, you would see the major oil companies lining up to be part of this industry. Petro-Canada, for instance, is an investor in Iogen. So behind the scenes they are laying the groundwork for it but at this point it's still—

**Mr Hastings:** Do you think that's a cultural thing in terms of having this stuff not totally mainstream yet in terms of business schools and business programs at community colleges? It's not brain-centred in terms of—you know, the government in whatever form has to be the driver to get the public to look at the values of some of these off-stream things—not off stream to us but off stream in the broader acceptance. You've got to get it into the science and technology and the business admin schools. Do you see that as part of this, not just consumer buying awareness?

1440

**Mr Boland:** Yes, I think you're right there. I think the government's role in awareness can't be underestimated, the impact it has, because it takes leadership. It's really a win-win situation, especially in the eastern Canada where we're net importers of light crude oil. Ethanol directly displaces those imports.

**Mr Eadie:** I think another—

**The Chair:** We're really going to have to move over to the official opposition.

**Mr Steve Peters (Elgin-Middlesex-London):** How many bushels of corn were produced in Ontario last year?

**Mr Eadie:** With grain corn, we usually hang in around 200 million bushels. Last year it was over that, this year it'll be a bit under that, but that's the ballpark.

**Mr Boland:** We just actually downsized the crop today. We went down to about 200 million bushels from what was projected to be a record crop of 240 million.

**Mr Peters:** In your brief you said 17.5 million bushels of corn are used to produce 234 million litres. Of that 17.5 million bushels being used right now, how much

Ontario corn is being used in Chatham, Tiverton and Cornwall?

**Mr Eadie:** I would say this year it probably would be a strong two thirds.

**Mr Peters:** Two thirds of that—

**Mr Eadie:** Just to add a little more to that, there is Ontario corn that's exported because of transportation rates into the northeastern United States, so you always tend to get some Michigan corn flowing across, into the Chatham plant especially, because of transportation issues. At the same time, in an average year we have Ontario corn that moves into the northeastern US feed industries. So you're always going to have some imports, depending on the geographical location of any large user of corn.

**Mr Boland:** In the case of the Chatham plant, about 5% of the corn that goes into it is contracted locally right around the plant, so there is a direct benefit to producers around the plant.

I should also make a correction. You mentioned 17.5 million bushels for 234 million litres, and that's not quite correct. The 234 million litres is national, because we also produce it from wheat in western Canada and some barley. There is also some wood waste based out at Timiskaming; Tembec is actually the producer of that. So there is some ethanol being produced by others than Commercial Alcohols.

**The Chair:** Very quickly, about 30 seconds.

**Mr Parsons:** To achieve the one billion litres, what would the effect be on corn that would have otherwise been destined for cattle? What effect would it have on cattle farms?

**Mr Eadie:** On cattle prices?

**Mr Parsons:** On cattle corn. If you're consuming this much corn, are you going to eat into the feedstock?

**Mr Eadie:** No. When you produce ethanol, number one, one of the main by-products of course with corn is the seller's grain, which is in itself a very high value feed to the livestock industry. With the supply of grains, if you take Canada as a whole and the price of it, if we moved up to the billion litres you wouldn't miss it at all as far as the livestock industry goes.

**Mr Boland:** That's a national figure by the year 2005.

**The Chair:** Thank you very much for coming forward. It was certainly a very interesting presentation. We look forward to the evolution of this particular commodity.

## AGRICULTURE TECHNOLOGY INC

**The Chair:** Our next presentation is from Agriculture Technology Inc, Steve Posthumus, president. I hope I pronounced that OK. If I didn't, please correct the record. State your name as you start the presentation and you have 20 minutes to be shared between presentation, responses and comments, and questions from the three parties.

**Mr Steve Posthumus:** Thank you, Mr Chair, and yes, you did pronounce it right.

We're a private company working in the Windsor-Leamington area, agriculture based, but I felt it necessary to come down here and share with you the sorts of things that we are doing and the sorts of things that are going to be involved in the agricultural industry.

We were approached three, four years ago by the greenhouse growers' association to help solve a problem within the greenhouses to remove the old crop when it's done. Within the greenhouse operation, most of the hydroponically grown—a tomato plant will grow up to 40 feet long, pepper plants 12 to 15 feet long. The labour situation was such that it was just a horrendous job, so we went in and developed some machinery to mechanically remove this old crop when the crop was finished. The first year we accomplished 36 acres, the second year 136, last year 250 and this year we'll top 500. We built a recycling plant; in other words, we are now in a position to grind up and separate the organic from the inorganic within the crop. This has been a major issue. A lot of farmers have felt that the tipping fees at the landfills were too dear; they either historically burned or buried the product.

Over the last year we have been researching quite extensively what we could do with this product. We can, of course, put it back on to the ground for wheat, soy, corn growers etc. But we felt perhaps there was a better option that would be environmentally sound and give the greenhouse growers' association a better perception of what's going on. We have found out that the material, the tomato and pepper vines, has about 7,500 BTUs per pound when dried. I have a sample here—not knowing exactly how this committee functioned. We found that, with that, we could in turn use this product to heat the next crop. Mind you, we need more than what is produced, so it would be blended with a wood chip. We can blend it with corn, we can blend it with corn stover, we can blend it with straw, whatever is out there that the agricultural community produces. It can actually be blended and used in a particular furnace.

I just happened to centre out one, a Talbott, made in England, which is now produced in the US. We feel it's the best one on the market. It actually can produce steam for cogeneration and, after the steam, hot water for heating the greenhouses. We also can take the CO<sub>2</sub> off the exhaust stack to put back into the greenhouses. So in actual fact, the greenhouse operation then becomes a zero producer of CO<sub>2</sub> from the stack, because the crop in itself will use it again, unlike a fossil fuel.

I'm here today to encourage this committee to assist the agricultural sector in this. I don't think we're asking for handouts, but I think there have to be some tax incentives. Right now, with the one incentive that's out there, the renewable energy development initiative, there's 25% on the capital cost up to \$80,000. That would mean about a \$320,000 expenditure for the greenhouses. Most of them, using a biomass fuel, will invest a minimum of \$800,000, and that's on a five-acre basis. The majority of the greenhouses going up are substantially bigger than that. The other, under the tax incentive, is section 43.1 of

the Income Tax Act, which allows 30% declining balance write-off. The unfortunate thing is that is for industrial use, and the agricultural industry and greenhouse industry haven't been defined in that yet. So I would encourage the committee to look into that to see if we could get the agricultural sector to go underneath that to get some incentive for the growers. The agricultural sector is having a tough enough time already, especially now with the tariffs and everything that we're dealing with with the US.

Gentlemen, ladies, I represent myself. I'm not representing the industry, although we're quite heavily involved in it. This year we will divert somewhere in the neighbourhood of 60 million pounds from landfill. We also recycle all growth media in which the crop is grown and we separate growth media from plastics. The plastics, in turn, are going to be used for another private industry to make consumer products, construction. So we're trying to help the industry as much as possible, and I just wish to encourage you to do what you can to offer any assistance, especially on a tax basis. I don't think that the growers want a financial handout; I don't think that's what it's about. But we have to put a carrot out there to make sure this sort of thing happens, because the technology is there and private industry will do this. We're just a small company down in our area, but this can be duplicated anywhere.

By all means, if you have any questions I'd be more than pleased to answer them.

#### 1450

**The Chair:** Thank you very much for the presentation. We have about three to four minutes per caucus, starting with the official opposition.

**Mr Peters:** You've talked about tomato, pepper, cucumber vines. What else is out there that potentially could be used as a source?

**Mr Posthumus:** We could use any of the municipal wood waste. We can divert pallets, tree trimmings or whole trees. All this can be ground up and blended. We would use probably 10% vine and then blend it with sawdust from manufacturing, any wood chip, any bark, anything of that nature. As well, we could blend it with corn stover, wheat straw, anything from the agricultural community, even poultry waste, dried down.

**Mr Peters:** In your facility here, with the energy that you produce, can you say you could do this many hundreds of thousands of square feet of greenhouses? Can you put a figure on it and say, OK, one of these facilities can do this much or produce this much energy?

**Mr Posthumus:** In our area we have approximately 1,000 acres. That uses roughly 10,000 gigajoules per acre per year in fuel costs. At \$6 to \$7 for gas, that's between \$60,000 and \$70,000 per acre. We can produce the fuel at approximately \$2.50 to \$3 a gigajoule; in other words, reducing the fuel costs by about half. The return on investment for most growers is going to be under four years. The volume taken out of the greenhouses, the 1,000 acres: we could probably do a 25-acre greenhouse just on vines. That's it. If there was nothing else, we



could heat 25 acres just from that. We're saying there's an opportunity there to blend this product and to offer growers a much less expensive fuel source, as well as being totally environmentally friendly.

**Ms Churley:** So this involves a plant? I'm just looking at you—is this—

**Mr Posthumus:** No, ma'am. That is just—

**Ms Churley:** Can you explain the diagram?

**Mr Posthumus:** That diagram is just a picture of a plant in the US. That is a cogeneration plant.

**Ms Churley:** And that's where you hope to get to?

**Mr Posthumus:** We hope that each individual greenhouse will have the ability to set up a cogeneration plant. In other words, for the larger ones, let's say the over-25-acre ones, they could produce their own steam for their own electricity, and they would have enough heat to heat the greenhouse as well as the CO<sub>2</sub> that's required for the crop to grow.

**Ms Churley:** It says here under "Products" in this particular slide, "Ash can be used as fertilizer." What would the process be that would produce ash?

**Mr Posthumus:** The ash that is left over after the combustion cycle can be used as a fertilizer to put back on the ground. It wouldn't be used in the greenhouse per se. We also have had inquiries from people in Texas to use the ash as an absorbent in oil spills and other chemical spills because it absorbs liquid products quite extensively.

**Ms Churley:** Because this is new to me, are there any downsides to this, in terms of the environmental impact, with the process itself?

**Mr Posthumus:** I guess there's a downside to everything. It's a little bit more labour-intensive. It now exceeds the environmental standards in Ontario by 50%, the burning, because it burns so clean. It's 98% efficient, this particular burning. This is not an incinerator.

**Ms Churley:** That's what I'm trying to clarify here.

**Mr Posthumus:** We're not burning garbage. We're burning carbon-based fuels such as wood, wood chips, anything that can be grown. So that's why I say it's a zero producer of CO<sub>2</sub>, because it is in turn used again within the greenhouse.

**Ms Churley:** So in the burning process itself, would that, under such high heat, produce natural dioxins because of the high energy involved? Sometimes the actual high burning will create dioxins.

**Mr Posthumus:** That's a question I cannot answer. I don't know, and I'm not even going to try to answer that, OK? I know that it burns 98% efficient. It burns the peppers or the cucumbers, and I don't know if there are any dioxins in peppers or cucumbers.

**Ms Churley:** Probably not. You're not burning anything else with these products, right?

**Mr Posthumus:** No. It's just carbon-based products, ma'am.

**Ms Churley:** That's all it is. OK. Thank you.

**The Chair:** Thanks very much. We'll now turn to the government side.

**Mr Hastings:** Steve, when you talk about tax treatment, we saw in Ottawa this morning from Natural Resources Canada the Canadian renewable and conservation expenses, which is a tax credit, or really a flow-through share arrangement very similar to what is used in the fossil fuel exploration and development. Is this the kind of specific structure you're looking for in terms of getting this stuff going in your particular industry to help greenhouse growers? You can produce a pile of food from this as well as the other benefits to the environment.

**Mr Posthumus:** Because I'm not an accountant and I don't know the particulars of that program—

**Mr Hastings:** It's about 80% to 90% under the Canadian resource exploration expense; 90% of a dollar that anybody puts in.

**Mr Posthumus:** See, that would be tremendous. What an incentive to get into this. It affords what the agricultural sector feel is a safety valve. They can set this up. It's usable. But let's say natural gas falls back down to \$3 or less a gigajoule, which I don't think will happen. They'd still have the ability to use gas. It isn't like we're trying to put any particular sector out of commission, but we feel that growers need a helping hand here. Because of the amount of money that's spent—up to \$60,000 an acre, and there are 1,000 acres there—they can save 50% or better just on this type of system, whether we do it or somebody else.

**Mr Hastings:** So you not only need this kind of tax treatment approach, but you need to have agricultural or food processing considered as an industrial application if they're going to define it very carefully.

**Mr Posthumus:** I think in this aspect, yes, for the construction of these particular units, the furnaces and the boilers. It would be nice to see not necessarily that they are classified as industrial, but perhaps that agriculture could be associated with that, that it be broadened to agriculture. I don't know if we want to turn around and call that part of the industry, the greenhouse industry, industrial, because that could open up a whole can of worms.

**Mr Hastings:** "Commercial," probably.

**Mr Posthumus:** That would be great.

**Mr Hastings:** Have you designed this recycling facility you're talking about?

**Mr Posthumus:** Yes, sir, I have.

**Mr Hastings:** What kind of experience did you have in dealing with the local hydros or with OPG or any of the other new entities out there in terms of the cogeneration here? Are there technical issues that we need to be looking at?

**Mr Posthumus:** I don't think so much technical. That end of it is pretty well done. When I say "cogeneration," I'm talking about more for grower to grower, not necessarily for the grower to put back into the grid. I don't know if that's even allowed in Ontario yet, that we can sell back to, as a small entity—I mean, these are small in comparison to—

**Mr Hastings:** That's a big issue in terms of some of the other alternative fuel suppliers such as solar and

wind. How do you deal with the standards in your building code and also with the connects, and what kind of educational stuff needs to be undertaken, and work out the economic side of the credits if you did go with that arrangement? I'm just wondering if that's something you need to look at.

**Mr Posthumus:** I suspect it is. I don't have any answers to that. I do know there'll probably be the stationary engineer within the facility to run the cogen. But as far as what else you talked about there, I can't answer that.

**The Chair:** Thanks very much for the presentation. Just a comment. In the energy crisis back in the 1970s, I heard a comment made by a speaker at that time that it didn't matter what you burned—whether it was oak or pine or straw—if dried to the point for burning, you received the same BTUs per pound. Of course it's a lot more convenient to handle the oak or the heavier wood, a lot less volume. I just thought it was an interesting comment. How credible that is—it was almost 30 years ago—but it kind of stuck with me.

**Mr Posthumus:** I think it's the same thing now, sir.

**The Chair:** Thanks very much for your presentation.

1500

#### EARTH ENERGY UTILITY CORP

**The Chair:** Our next one is David Medhurst from Earth Energy Utility Corp, the CEO.

**Mr Roy Unny:** Actually, I'm not David Medhurst; I am Roy Unny, here on behalf of David Medhurst. I work for David Medhurst.

**The Chair:** Thank you very much. I was just going by what was written here.

**Mr Unny:** As usual, people make mistakes and the presentation I'm going to give you is slightly different from the one in your notes. I just realized I forgot to copy the one from our LAN on to here. If there are a few differences, the one that you have is the proper one.

Thank you very much, Chair and committee members, for allowing me to make this presentation. As I said, my name is Roy Unny. I work for Earth Energy Utility Corp. I am the director of project management and I work for David Medhurst, our CEO. It's our pleasure to be able to make this presentation to you.

I will give you a presentation to explain who Earth Energy is, what geoechange technology is, and at the end I have a few recommendations that I would like the committee to consider. I have prepared a brochure, with our corporate brochure and a number of case studies for your use, as well as a copy of the presentation. I would be happy to answer any questions that you have. I hope I'll be able to answer them.

I always like this slide; I love the picture: "Heating and Cooling the Way Nature Intended."

Who are we? We are the world's first geoechange utility. Later, in a few slides, you will understand exactly what geoechange is. Our core market is large-scale residential, institutional and commercial buildings to use

ground source heat pump technology. We are dedicated to sustainable energy innovation and we are focused North America-wide as our target market.

Our mission statement is quite simple. It's bold but it's what we want to do. We want "to be the world's largest geoechange utility company." We are also the first one. The first out of the block gets to lead, and our goal is to be the world's largest. After North America, there's Europe and many other continents available for us.

Our corporate structure: we are a multinational technology corporation and we are structured on a utility model. We own the plants that are put in. Our major shareholders are New Energies Invest, a Swiss holding company, and its shareholders basically are very large Swiss banks: Bank Sarasin and Swiss Re. They have put up the start-up capital for our company. We have been in operation about eight months. Obviously we've got some strong financial backing behind us. They've given us initial capitalization of \$32 million and it will grow to \$100 million next year. We definitely are in this market here to make money, but at the same time we feel we can make money while providing a sustainable energy solution.

New Energies Invest's mission is to be Europe's leading sustainable energy technology conglomerate. Their goal is to invest in various sustainable energy technologies: geoechange, photovoltaic and wind. They've invested in two companies in California. However, we are the sole geoechange unit and we are based in Burlington, Ontario.

This slide has got too much detail in it but your slide basically has a little less. Our company was formed eight months ago and we started by developing it with a core group of senior advisors and directors. Two of the key advisors with whom I'm sure you're quite familiar are Simon Reisman—he is chairman of our board—and John Rae, who is the executive vice-president of Power Corp. Other board members include Lord David Currie, senior economic advisor to Prime Minister Tony Blair; Kevin Brown—their names are all in there—and a number of the Swiss bankers; Dr Juan Rada, who is a senior vice-president of Oracle Software. So we've developed a very strong board to advise us as we go ahead.

Our key management: there is a lot of detail here; you don't need to see it. Basically most important is David Medhurst, who is our CEO. He has 23 years of international experience. He ran a consulting company in Toronto for many years, the condo market. He was instrumental in developing reserve fund studies etc. I'll skip the rest of this. This shouldn't have been here, details about us. That's more of a sales thing.

Let's get to the important part. I'm not sure if any of you have had a presentation yet about geoechange.

*Interjection.*

**Mr Unny:** My pleasure to be the first.

How does geoechange work? Some of the Web sites have these funky little diagrams, and maybe I should have put one in here, but that's all right. The earth absorbs 47% of the sun's energy. It's free energy and this



is 500 times more than mankind needs every year. What it does is produce a constant underground temperature. Basically your first 1,000 feet of crust, for lack of a better word, are maintained at a constant temperature because of the sun.

What geoechange heat pumps do is take this energy during the heating season at an efficiency of 400% and they take the energy in the cooling season. What happens is they extract the heat from underground using pipe loops—these are closed loop systems—or you can actually take it from ponds and rivers. In the summertime you actually send heat down into the earth. The result is that what you extract is always at a constant temperature and it's that constant temperature that you use to run your system.

Basically, conventional HVAC distribution systems deliver conditioned air to the zones. In a nutshell, we provide heating and air conditioning using free energy from the sun. That's probably the simplest explanation. It has been in use for over 40 years. This is not a new technology.

It's renewable and highly eco-friendly. Whatever is extracted in the winter is essentially renewed in the summer. All you're doing is transferring heat from the ground and into your building, back and forth.

According to an EPA study—and it's in our brochure—it is the most energy- and cost-efficient space conditioning technology and it has the lowest operating and maintenance costs.

There are over 800,000 installations worldwide. I'll focus on Canada: 30,000. Most of those are in the residential home market. There is a niche market there. That is not a market that Earth Energy is focusing on. We prefer large-scale commercial or institutional buildings where your heating and air conditioning loads can be very large, several hundred tonnes. When you think of all the greenhouse gases which must be used to maintain a building such as this at a comfortable temperature, you can see that that's an underserved market from our point of view. That's our core market.

There have been many sample projects across North America, up to one million square feet etc.

What are the benefits of geoechange? Renewable energy. There are no pollution side effects. Cost savings—capital and operating—from an Earth Energy point of view. It's proven. It's got low maintenance costs. Extended equipment life.

You can have zone controls so each individual room in a condo would have its own heat pump and they don't have to fight with each other. If you're in, let's say, a multi-residential building, the south side could be cooling their units at the same time the north side is heating their units. That would be an example. I remember the last time we lived in an apartment and it was "Me first." Whenever the heat got turned off, if you were on the south side, or whatever, if you were on the north side it would be cold for about a month.

Safety: there are no carbon monoxide issues; very good indoor quality; no ancillary construction costs; improves space planning; and low noise.

Why geoechange now? Why has Earth Energy been created? Well, for a number of reasons, and I'll just bring them all up here.

The Kyoto Protocol on greenhouse gases: we essentially reduce greenhouse gas emissions. Energy price increases: natural gas has had almost a 300% increase in the last few years. We say it's socially and corporately responsible. Superior HVAC technology. When we market this to corporations, building owners, developers etc, we say that it gives you an enhanced market position. Tenants will want to come to be in your building.

It frees up scarce resources for better uses. Why should electricity be used for heating and air conditioning when—if you remember about a month ago when Ontario Hydro, or OPG, whatever, had its largest demand, they were probably asking many factories to shut down so that load could be used essentially for air conditioning. We would free up those resources.

And we come to the rescue. This is a slide I picked off the Geoechange Web site. Essentially, putting it in your house is equal to taking two cars off the road. That's a little chart that I saw, but they have lots of similar examples. For example, it's also equivalent to an acre of trees if you were to put it into your house. So, if you can, imagine us going into a multi-residential apartment building, the immediate impact we have.

#### 1510

What are barriers in North America? High initial capital costs, lack of infrastructure, lack of knowledge by HVAC industry and design professionals, and lack of awareness by the public.

What is Earth Energy's response to these barriers? We offer a utility service. We design, install, own and manage the complete system, so if you are building a brand new multi-residential apartment building, we will take complete ownership of your entire HVAC system and we will install your loop field outside for you. That is our job. Under a utility service agreement, you basically sign a utility agreement with us and essentially we get paid over the life term of the utility agreement. We assume the technology risk. We finance it to eliminate the capital cost barrier. We recognize that because you do a lot of work outside—you're drilling a closed loop system outside of the building—there's an associated capital cost, but we take responsibility for that. We support the service infrastructure, and we've built contacts nationally and internationally.

What's our mandate? To encourage development of capabilities in the industry—engineers and architects—to support our interests and industry growth: we want other companies to come out there and put these systems in. Increased use of renewable energies wherever possible: we love going into systems where there is some electricity required to run the heat pumps where they could be run off photovoltaics. To partner with other energy

suppliers where synergies exist and to eliminate the need to own HVAC equipment: we're selling energy.

So what are some recommendations we have to the committee? Obviously we'd be pleased to meet with any committee members at any time to discuss these further.

We think that all government-funded projects should be made to consider sustainable technologies, any of your SuperBuild projects with colleges, hospitals. Ensure that they consider sustainable technologies that are economically viable, not just capital-wise but in operating costs, that are capable of meeting the energy needs. With new buildings that use conventional technologies, why not make them demonstrate that sustainable technologies were not viable?

We encourage that design support be provided by the government to support alternative fuel sources for space conditioning. The federal government has a number of programs that have various degrees of success. CBIP would be perfect example. I don't know if any of you are familiar with that program. That's run by NRCan.

Work with municipal governments to allow increased occupancy densities or reduce property tax rates for new buildings that reduce greenhouse gas emissions. Perhaps there's a trade-off. What we encounter many times with owners and working with municipal governments is that they'd like to maybe put up another floor or two, but they're not allowed to. If they put a system in that reduces greenhouse gas emissions, perhaps there would be a solution there.

Encourage municipalities to permit private and public customers to utilize the flow of water from public water mains for the operation of heat pumps. You essentially have a free source of energy in the water mains that run through the city. Technically, there's no reason why heat exchangers shouldn't be connected to that.

Adopt the Model National Energy Code—this was developed by NRCan—and AHSRAE 90.1 as part of the Ontario building code. In our opinion, Ontario is very far behind the United States in updating the applicable energy codes. The bar has been raised, and this is a little beyond Earth Energy, but just in terms of minimal requirements for U-values etc, there's no reason why the building codes should be a decade behind.

Of course we'd love to have the PST exemption on equipment that reduces energy use and greenhouse gas emissions.

And, support demand side management for utilities and distributors of electricity.

I've gone through this quickly but I wanted to give you time to ask questions, so thank you very much. I hope I didn't rush through it too quickly.

**The Chair:** We have about a minute and a half per caucus for questions and comments.

**Ms Churley:** Thank you for your presentation. Can you describe quickly how this works technically?

**Mr Unny:** Essentially, you're circulating a fluid and the heat that you have in your building in the summer is dumped into that fluid through a heat pump.

**Ms Churley:** What the fluid?

**Mr Unny:** Water.

**Ms Churley:** It's just water.

**Mr Unny:** It's just water, but it's a closed loop, it's pressurized at 100 PSI. That water circulates through a pipe 400 feet into the ground, a closed loop. There's nothing environmentally bad about this at all.

**Ms Churley:** So that's really all it is?

**Mr Unny:** You're dumping your heat from your building into the ground, and when the fluid comes back out of the ground, it is at a much cooler temperature, so then you can dump more heat. It's just constantly circulating.

**Ms Churley:** So the high cost, then, is just that, the installation?

**Mr Unny:** There is a capital cost associated with putting the pipes in the ground. For a typical, let's say, 45-storey apartment building, you have to put 10,000 feet of pipe in the ground. Obviously, we'd love a solution that minimized that, but there's a lot of pipe that needs to go in the ground.

**Ms Churley:** So it wouldn't work for a retrofit, say, for public housing?

**Mr Unny:** Yes, it would.

**Ms Churley:** It would, OK. Suppose you had a public housing complex that needed retrofitting anyway? You'd have to dig a very deep hole.

**Mr Unny:** Yes. If there's a parking lot, for example, you could—obviously for a few days the parking lot would have to be disrupted, but essentially we'd go there. We'd have to contact utilities to make sure we don't interfere etc, but we're exempt from all EPA regulations. Whether that's good or bad depends on how you look at it. But there's nothing environmentally bad about our system. You get a drill rig, we buy the pipe. It's the same pipe the gas companies use, no difference.

**Ms Churley:** How long would it take to recoup your costs?

**Mr Unny:** We sign 50-year contracts.

**Ms Churley:** Fifty years, OK. Thank you.

**Mr Hastings:** Where in Canada do you have a specific commercial application right now in an industry or a multi-residential?

**Mr Unny:** I can give you many examples. Right now I'm working on a project in Woodstock, Ontario, a new apartment building. But in terms of existing ones that have been built over the last 10 years before this energy, there are many in our brochure there. Guelph Hydro put their head office in Guelph entirely on heat pumps.

**Mr Hastings:** Would I be under the misapprehension, then, that existing hydros and the architectural profession and all the players involved in this are more up to date than perhaps the energy bureaucrats? We had a briefing yesterday where geothermal was not considered a sustainable energy. They look at it in terms of Iceland or Wyoming.

**Mr Unny:** Yes, this is a problem with the industry. That's why we use the term "geoexchange." Geothermal, traditionally everybody thinks of volcanoes.

**Mr Hastings:** Localized.



**Mr Unny:** This is localized. In fact, George Bush's ranch house in Crawford, Texas, is entirely cooled with heat pumps. But does he come out and say that? No. The industry has had a marketing problem, and a geo-exchange consortium has been created—Earth Energy is a member—to address this concern. But as I said before, the EPA says this is the most viable solution for heating and air conditioning needs. There is nothing that competes with it.

**The Chair:** Now we have geoexchange clarified; that's great. We'll move on to the official opposition.

**Mr Parsons:** Just a comment, I think, more than a question. I had some experience with this a little over 10 years ago. We had an existing school, and the challenge was that the classroom on the south side with 40 students in it was hot while the classroom on the north side with 20 was cool. So we retrofitted the school with this system and gave each classroom a separate zoning. It was and continues to be a success. It has worked extremely well for the school.

**Mr Unny:** That's good to hear.

**Mr Parsons:** There were some higher initial costs than the conventional system. The challenge for the schools has been, although it's a great system, the funding formula no longer allowed that higher additional cost. In fact, the payback, if I'm remembering right, was eight or nine years.

**Mr Unny:** It could even be longer. Schools actually put horizontal systems in, so you're not drilling down, you're just laying the pipe in a soccer field, for example, where the costs are much lower. But the payback is very long, and that's why private companies don't do it. In a sense, that's why Earth Energy has been formed. We are willing to take those longer paybacks and save you the initial capital cost barrier.

**Mr Parsons:** Along with saving money, it greatly improved the quality of life in the classrooms.

**Mr Unny:** That's very good to hear.

**The Chair:** In my understanding, you're talking about pipes in the ground rather than using water from wells.

**Mr Unny:** You can use water from wells, as well. All the solutions are viable. The problem with using water from wells is that it's a groundwater aquifer. It's not that we introduce anything into it, but the permitting process is a lot more difficult now than perhaps it might have been five years ago.

**The Chair:** So what you'd be introducing is a thermal effect?

**Mr Unny:** Yes. The Ministry of the Environment will have no problem with it, but there is a permitting process; with the closed-loop system, no permits.

**The Chair:** Thank you very much. We really appreciate your coming forward with your presentation.

1520

#### ONTARIO SOYBEAN GROWERS

**The Chair:** Our next presenter is from the Ontario Soybean Growers, Matt McLean, the board's secretary.

You have 20 minutes for a presentation, and what's left over of the 20 minutes we'll divide up evenly among the caucuses for questions and/or comments.

**Mr Matt McLean:** I want to start off by saying that I'd like to thank you for providing us the opportunity to speak with you here today.

I'm Matt McLean, and I'm board secretary for the Ontario Soybean Growers. That's an organization representing over 25,000 soybean growers here in Ontario.

What I wanted to speak to you today about is biodiesel. I'm going to follow along in the handout I've prepared for you.

Just a little bit of background: biodiesel is a non-toxic renewable fuel derived from lipid feedstocks such as vegetable oil or animal fats. It's made through a process called transesterification. That's kind of a fancy word. Basically it's a process where soybean oil or any vegetable or animal fat is reacted in the presence of a catalyst with an alcohol. What that does is create—as you know, oils are very viscous; it makes it a less-viscous liquid, more similar to diesel fuel.

I just wanted to briefly run through some of the benefits of biodiesel fuel. When burned in a conventional diesel engine, it curbs harmful exhaust emissions such as carbon monoxide, hydrocarbons, diesel particulate matter and aromatic compounds. As I said, it can be used in existing diesel engines with no modifications required and it also blends completely with conventional petroleum diesel. It actually can be burned in levels of 100% biodiesel, but most conventionally it's blended with petroleum diesel, and a 20% blend seems to be the standard blend used.

As I mentioned, renewable, cleaner burning, cleaner to the environment, increases fuel lubricity. That's an issue in striving to get sulphur out of diesel fuel. Sulphur is a lubricating property in conventional diesel fuel, so as we strive to reduce the sulphur levels in diesel fuel, this will be an excellent additive to add back into conventional diesel fuel as a lubricity additive. Increased cetane; biodegradable—it's four times faster than petroleum number 2 diesel; non-toxic—just a little number there, 10 times less toxic than table salt. It has a high flashpoint, meaning it's less flammable, safer to handle than petroleum diesel. The use of it would mean less dependence on imported oil and would extend the domestic fossil fuel supply for Canada. Expanded market opportunity for Canadian agriculture; I'm here on behalf of the soybean growers, and we see this as an excellent opportunity for an expanded, value-added use for soybean oil.

Moving along quickly, life cycle analysis: this was based on a study that was done by the national resources energy lab in the US. Back in 1998 they did a biodiesel life cycle analysis, and the results of that study have indicated that the energy balance for biodiesel is 3.24 to 1. Basically what that means is that for every one unit of fossil fuel that would go into producing biodiesel, biodiesel produces 3.24 units of energy. That's a very good energy balance. Also from that study they concluded that carbon dioxide emissions were reduced by

78.45%, and that's using 100% biodiesel; for a 20% blend, the reductions were 15.55%.

Also, there are quite a few points I've put down summarizing a US health effects study. Biodiesel was the first alternative fuel in the United States to go through what they call tier 1 and tier 2 EPA health effects studies. These are the results. I don't know if you want me to go through all of them, but there are some significant advantages to biodiesel as far as health effects. Some of them are: the ozone-forming potential of exhaust emissions from biodiesel is 50% less than that of conventional diesel; particulate matter, which is a cause for respiratory disease, was reduced by 30%; exhaust emissions from aromatic compounds such as PAHs and nitrated PAHs, which are compounds suspected of causing cancer, were substantially reduced by biodiesel compared to conventional diesel. PAH compounds were reduced by 75% to 85%, and nitrated PAH compounds were reduced by at least 90%.

A little bit of background about biodiesel in the US: it's a market that has been expanding incredibly over the last few years. Our organization is actually an associate member of the National Biodiesel Board in the US, which is a board working, insofar as commercializing, biodiesel in the States.

Some stats: in January 1999 there were very few fleets in the US using biodiesel, but as of January of this year there were over 50 major fleets which had implemented biodiesel programs across the country. These include government fleets such as the US Postal Service, the US Air Force, the army, of course the US agriculture department and the Department of Energy, and state fleets in several states such as Ohio, Iowa and New Jersey.

Currently in the US there are several efforts underway in several different states, and Minnesota is one that is leading the way, as far as implementing legislation requiring all the diesel fuel in that state to be blended with low-level biodiesel, up to 2%.

I also want to speak today a little about a Canadian opportunity. We've been members of the National Biodiesel Board for probably about seven years. We've been watching and learning what's going on in the States. Just recently here in Ontario a company by the name of Biox Corp has constructed a one-million-litre-per-year demonstration plant in Oakville, Ontario. That plant is based on a new technology which was developed right here in Ontario at the University of Toronto by a Dr David Boocock. It's basically a more energy-efficient way of producing biodiesel than what has currently been used to a great extent in plants in the US. Biox intends to manufacture and sell biodiesel plants in 2-, 5-, 10- and 15-million US gallon capacities. With this technology, they believe they can actually make biodiesel price-competitive with conventional petroleum diesel.

This brings up a point. You might say, what is the drawback to biodiesel? Over the past few years the main drawback to having biodiesel commercialized and on the market has been its price; it has traditionally been two to three times the price of conventional diesel, which makes

it a little less attractive. This company believes they will be able to make it price-competitive with petroleum diesel.

In the States right now, one of the main reasons for its use picking up has actually been a subsidy provided by the United States Department of Agriculture. They subsidize the production of biodiesel to the tune of, I think, \$1.20 per US gallon, and that's for biodiesel made from soybean oil.

One of the things to keep in mind is that Canada is a net exporter of vegetable oils and a net importer of soybean meal. New markets for vegetable oils would mean an increased demand for soybean oil here in Canada, and especially Ontario, and that would therefore increase the domestic crush of soybeans and reduce dependency on imported soybean meal. Those are the two basic products coming out of soybeans, soybean oil and soybean meal. The meal is used predominantly in the livestock feed industry and the soybean oil traditionally goes to things such as margarine. Right now, the way things are, what's limiting the crushing of more soybeans here in Ontario has been trying to find a market to get rid of the soybean oil. That's kind of the limiting factor. We're trying to see: if we can increase the market for soybean oil, we could increase crush of soybeans here in Ontario.

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I've also got a little bit of information on market size, comparing the US diesel market to the Canadian diesel market. A point to keep in mind is that if all the soybeans and canola, which is another major crop here in Canada, were crushed in Canada and used for biodiesel production, it would amount to about 3 million metric tonnes of oil, or nearly 1 billion US gallons of biodiesel. In reality, all the oil is not going to go for biodiesel. I think a good estimate would be if 25% of those vegetable oils went toward biodiesel production, that would satisfy about 6% of the diesel fuel market in Canada. Therefore, I don't see it as a really big threat to the petroleum industry, insofar as you're never going to take over the use of conventional petroleum diesel by the use of biodiesel. In many instances, I think it's quite a complementary technology for the petroleum industry.

I would like to run through this quickly to finish up. I've listed five policy recommendations that I'd like to be considered. The first one, and probably the most important on the list from our organization's standpoint: we feel it's essential that biodiesel have the same federal and provincial excise tax exemptions currently in place for other alternative fuels. Excise tax exemption has been a great policy as far as getting industries up and going, as you know, with the ethanol industry. I think this would be a considerable help to actually having biodiesel produced commercially and sold and used here in Ontario.

Another thing is, both the provincial and federal governments need to develop a biodiesel procurement policy and basically lead the way in the use of these renewable fuels as a viable alternative to burning fossil fuels. Just through our involvement in the National Biodiesel Board in the States—it's an area that has really



picked up. The use and commercialization of this fuel in the US has been government agencies procuring and using this fuel and setting the standard.

Some other things would be funds and interest-free loans and other incentives that would provide rural communities the ability to establish value-added, agriculture-based industries, basically maybe setting aside money or incentives to actually have some biodiesel plants go up here in Ontario.

I also think it's necessary to have incentives provided to municipalities and transit commissions to use alternative fuels as a means to curb harmful exhaust emissions and pollution.

Possibly, consideration should be given to a mandated renewable fuel standard. This would be that fuel be required to contain a certain percentage of renewable content for large urban centres experiencing problems with pollution and smog. This is an initiative that's really been big and is starting to take off in the States at the state level—a mandated renewable standard—and it's also working its way up to the national level.

I guess that's all I have to present. You're welcome to put some questions.

**The Chair:** We have about two minutes per caucus, starting with the government side.

**Mr Jerry Ouellette:** Thanks for your presentation. We heard this morning about corn stalks and corn cobs being utilized. Is it just the bean that's utilized here?

**Mr McLean:** It's actually the oil that's crushed out of the bean.

**Mr Jerry Ouellette:** Just out of the bean, not out of the plant itself?

**Mr McLean:** No.

**Mr Jerry Ouellette:** What's the current production level in Ontario, or is there any?

**Mr McLean:** Currently there is no commercial production of it in Ontario. As I said, there is the million-litre-per-year demonstration facility in Oakville.

**Mr Jerry Ouellette:** You mentioned the US\$1.20-a-gallon subsidy. Is that what it would require in order to be cost-competitive?

**Mr McLean:** I think in the US that has been a requirement because they're still using an older technology, and the fuel is still at least twice as expensive as conventional, so it's definitely necessary there to make it competitive. You'd have to speak directly with the people from Biox, and I think you will have the opportunity. They believe they can make it pretty much competitive cost-wise with conventional diesel, so there may be room for that type of incentive.

**Mr Jerry Ouellette:** But that's only with a subsidy, or a tax exemption?

**Mr McLean:** I think they're counting on a potential tax exemption.

**Mr Jerry Ouellette:** That's typically for a five-year period, after which time they expect to be taxed the same rates as conventional fuels.

Is there the current infrastructure in place to distribute this, and can it be utilized in the current systems that are

out there? Also, what about utilization in home heating fuel for it?

**Mr McLean:** I'll go back to your first question on the infrastructure. It basically, as I said, blends completely with petroleum diesel. As far as infrastructure is concerned, transportation, holding tanks and stuff would be basically the same infrastructure that's in place right now. At terminal facilities, I would imagine they would have a separate tank with biodiesel where they'd blend it in with their conventional diesel. But as far as transportation and stuff, it would be all the same.

**Mr Jerry Ouellette:** And home heating?

**The Chair:** Thank you very much. The official opposition. Mr Parsons.

**Mr Parsons:** A technical question, because I know very little about this. I own a number of tractors that have diesel engines, and I know if you leave summer diesel in, in the winter you really have jelly in the tank.

**Mr McLean:** Yes.

**Mr Parsons:** Does this have the same characteristics?

**Mr McLean:** Yes. Compared to conventional diesel, its cold flow properties are slightly reduced.

**Mr Parsons:** OK. The other thing I noticed—because one of the neat things in life is getting a diesel started in the winter—it has a higher flashpoint.

**Mr McLean:** Yes.

**Mr Parsons:** Is that a problem in the winter months?

**Mr McLean:** I haven't heard anything about the flashpoint being a problem in the winter months. As far as winter operability, I don't think you'd want to run 100% biodiesel. Actually, there's a company in Montreal running 20% in the winter in their facility.

**Mr Parsons:** OK.

**Mr Peters:** It's good to see you again, Matt. Matt and I had an opportunity, Mr Chair, to see a constituent in my riding, Jay Curtis, who has been experimenting with biodiesel and is operating one of his tractors. I'll tell you, it smelled like French fries being cooked inside that tractor. It was really quite amazing.

Matt, if policy changes were to happen in Ontario, what kind of co-operation in this area—for example, you've got General Motors diesel building locomotives, you've got the Sterling Truck plant in St Thomas, the Navistar plant. Do we need to have some co-operation from these large industries if we were going to go to a B20, as an example?

**Mr McLean:** Definitely, everything helps, having everyone co-operate and work together, and to a great extent that's already been initiated in the US. As you know, a lot of these companies have headquarters in the US. Things like Cummings, Detroit Diesel, and Cat diesel engine specifically are quite onside with the use of biodiesel and actually warrant it in their engine warranties. So I think that's definitely—yes, we'd have to work with the Canadian counterparts and make sure everyone is onside with that as well.

**Ms Churley:** Thank you for your presentation. So you're not in competition with any of the other alterna-

tive fuels like ethanol and others; you just want the same treatment.

**Mr McLean:** Basically, yes. I guess—

**Ms Churley:** Are you in competition in some way with any of them?

**Mr McLean:** We'd like to see that biodiesel would be kind of—what ethanol is to gasoline, biodiesel would be to diesel.

**Ms Churley:** OK. Why aren't you included in the financial incentives for alternative fuels?

**Mr McLean:** I think biodiesel has been a much newer thing, developing in the States over probably the last 10 to 12 years. As I say, we've been involved with that process for about the last six or seven years.

**Ms Churley:** So you're in the process now of trying to be included, and a recommendation from this committee, I assume, would help with that.

**Mr McLean:** Yes. I think our number one priority at this point would be to be included with the other alternatives.

**The Chair:** Thanks very much for your presentation. It is interesting to see how competitive biodiesel is getting to be.

**Mr McLean:** Yes. Great. Once again, thank you very much.

1540

#### NATURAL GAS VEHICLE CO-OP

**The Chair:** We move on to our next presentation, the Natural Gas Vehicle Co-op, Ray Wolting, chair. Ray, if you'd come forward. You have 20 minutes for your presentation. What's left over from your presentation in time, we'll share equally among the three caucuses. Please state your name for the sake of Hansard, and you can start any time.

**Mr Ray Wolting:** Thank you. My name is Ray Wolting. I'm the chairman of the NGV Co-op. I have handouts coming. They'll be here any minute for you. I left mine in the truck, and my colleague has gone to photocopy 25 more.

Let me begin by thanking everyone for giving us the opportunity to present our case for alternative fuels and taking time out of your schedule to come to London. I know these last couple of days have been very busy for you.

We are the NGV Co-op. We are a member-owned organization in southwestern Ontario that coincides with Union Gas's franchise area. We have eight conversion shop members and three associate members. Some of us have been in the NGV business since 1984.

The co-op was formed to make the public more aware of natural gas as a vehicle fuel and the co-op has been in existence for three years. It will be three years this January 1.

We have co-op shops: Agri-Tech Automotive in Brantford; ATW Automotive in Chatham—that's where I'm from; Cosimo's Garage in Hamilton; Downtown Auto in Kitchener; Hi-Tech Automotive in London; MSJ

in Windsor; Warren Automobile in Cambridge; and Yugo-Tech in Mississauga.

This is my colleague with your handout.

**Mr Jerry Lacina:** Good afternoon. My name is Jerry Lacina, and I'm with Union Gas.

**Mr Wolting:** What we provide our customers with is an after-market conversion system that enables their vehicle to operate on both natural gas and gasoline. We also convert forklifts and ice resurfacers. Both those types of vehicles, those off-road machines, are being converted because of air quality restrictions or concerns in arenas about indoor air quality and also in plants with the forklifts running indoors. We provide service for natural-gas-powered vehicles, both conversions and factory-built. Some of our members own and operate refuelling stations to fill vehicles with natural gas. We also market and advertise NGV, along with Union Gas. We provide management for a cylinder rental program that Union Gas owns at the present time as well. We are also a member of the Canadian Natural Gas Vehicle Alliance, which is the national voice for NGVs.

We are on page 5 now. Thank you for handing those out. My apology for not having it.

**Mr Parsons:** They're warm.

**Mr Wolting:** They should be warm.

Conversion of a vehicle to operate on natural gas: the installation of that involves carburation equipment and regulation equipment. The carburation equipment is the part of the conversion that mixes the natural gas with the air so the engine can burn it. The regulation is the part that reduces the fuel storage pressure to a pressure at which the engine can accept it. Also we install a fill point and cylinders. The electronic interface—we have to interface with the OEM computer, and that technology is approaching OEM technology and is becoming very complicated and costly. Most conversions are bi-fuel. The vehicle retains the original gasoline system and the vehicle can operate on either fuel: gasoline or natural gas. Some systems prioritize natural gas and they won't run on gasoline if there's natural gas in the system. Conversions, we believe, are necessary to justify investing in and expanding the existing refuelling infrastructure.

Factory-built, natural-gas-powered vehicles are typically dedicated and monofuel. The engines in those vehicles are optimized to run on natural gas. They are designed by the engineers to run on natural gas as the only fuel. Compression ratios are increased, valve timing is different and the exhaust systems are different. They also provide a factory warranty. The emissions in those factory vehicles are certified to ULEV, which is ultra-low emission vehicle, or SULEV, which is super-ultra-low emission vehicle. Those are Californian standards, and presently the natural gas Crown Vic is the cleanest internal combustion engine vehicle, the factory natural gas one. However, it's more expensive than a conversion. They are manufactured in Ontario. The Crown Vic is manufactured in St Thomas.

**Mr Peters:** The St Thomas assembly plant, the only plant in North America.



**Mr Wolting:** That's right. That's the only place.

Factory-built OEM versus conversion: the NGV industry has been actively promoting factory-built OEM natural gas vehicles. Unfortunately, we have not been as successful as we had planned. A number of factors have contributed to this. Many customers are not comfortable with dedicated monofuel vehicles. The customer must be in the market for a new vehicle of the type offered by the manufacturer. It's not like the customer can go and say, "I want a Chevy pickup with these colours and these options and put natural gas on it." There is a limited number of vehicles you can buy with the natural gas option on them. We also think the resale value of the vehicle might be questionable halfway through the life cycle if it's dedicated to natural gas.

The conversion of gasoline vehicles is a transitional step in supporting OEMs. The advantages are that it supports the development of the refuelling infrastructure needed to make dedicated vehicles feasible. The customer's existing vehicle can be converted or the one he purchases can be converted. The resale value is maintained because the conversion can be removed.

The future of the NGV industry will definitely be built on OEM products. The after-market conversion business is present for two significant reasons: to provide a basis for the development of the infrastructure that dedicated OEM vehicles require and to provide consumers with an opportunity to become familiar with NGV before making a commitment to factory-built vehicles.

With regard to the environment, natural gas is cleaner and safe. This is the same fuel that is used to heat homes, cook meals and dry clothes. From a vehicle emissions perspective,  $\text{NO}_x$ , oxides of nitrogen, is 43% less on natural gas. Carbon monoxide is 74% less.  $\text{SO}_2$ , or sulphur dioxide, which is an acidic particle that irritates lungs and inhibits lung function, is 63% less. VOCs, volatile organic compounds, are 93% less, and that figure is really high because a natural gas system is a closed system; it's totally sealed when the vehicle is running. These VOCs are the evaporative emissions that happen with a liquid fuel as you're opening the gasoline cap or gasoline in the tank evaporates and is captured through the evaporative emission system. But NGVs don't have that problem. Carbon dioxide is 23% less, and that's the number one greenhouse gas. We believe that 40% of all smog is due to automobile emissions. The OMA estimates that 1,900 Ontarians die prematurely due to smog exposure.

From a safety perspective, natural gas has a higher ignition temperature, a narrower flammability range. It's lighter than air. In the event of a leak, it dissipates into the atmosphere. It floats up into the atmosphere. The natural gas cylinder is made of steel and is very strong. No licence is required to refuel natural gas; you can refuel that yourself at many self-serve stations that exist in Ontario already. It's also non-toxic.

Why would a conversion business support factory-built products? The major portion of our current business is the service and maintenance of gasoline-powered

vehicles. For the NGV industry to be successful, a mass-produced, factory-built product is required. We would provide service and maintenance, and in some cases refuelling, for those vehicles. Conversion technology costs are escalating. Conversions are the bridge until the OEM product is readily available.

What can the provincial government do to help? We think they can provide leadership by example and provide a favourable arena for the growth of natural gas as a vehicle fuel. The current program, which is a \$1,000 provincial sales tax rebate, has been in existence since 1985 and has been very successful, but needs to be updated. Some examples are: the purchase of NGV-powered vehicles for the provincial fleet; provide a full PST rebate for factory-built NGV-powered vehicles; increase the present PST rebate of \$1,000 to \$2,000 for after-market conversions; provide no-charge vehicle registration for NGV-powered vehicles; provide direction and incentives to the municipalities for vehicle procurement, maybe through organizations like the Association of Municipalities of Ontario.

#### 1550

Facts to consider: natural gas is a Canadian product. Natural gas is clean and safe. Natural-gas-powered vehicles are available now. Ontario has more than 65 NGV public refuelling stations; on-site refuelling is available. Many of the factory-built vehicles are made here in Ontario. Many of the NGV components are made here in Ontario. Ontario is a major exporter of NGV products and technology. Many jobs in Ontario are related to this business. Ontario taxpayers want a solution to its smog problems. There were 23 smog alert days this summer in the Toronto area.

Just some final thoughts: in reviewing our business experience, it's obvious that the NGV industry has benefited tremendously from the existence of the PST rebate. Much valuable experience has been gained. However, in the final analysis, the customer's motivation to purchase an OEM NGV-powered vehicle must outweigh the hurdles present in the current sales equation. Buying an OEM is much more complex than purchasing a gasoline model and converting it. Even with the aggressive incentives in place, persistence and time are necessary on the buyer's part. So until a customer can easily execute the purchase of an OEM, the conversion option is necessary for the industry to grow. With very little extra effort, a customer can have his vehicle converted.

Owning a natural-gas-powered vehicle brings its share of benefits, some measurable, such as lower fuel costs, some less tangible, such as the environmental benefits and a renewed hope, as an NGV vehicle owner, that more people make the worthwhile investment in NGV. The choices customers make with respect to energy usage must be founded in sound economic, environmental and engineering facts. Only when a customer becomes informed and involved will they be able to choose an alternative fuel wisely.

Thank you for your consideration.

**The Vice-Chair (Mrs Marie Bountrogianni):** Thank you very much. We have about seven minutes for questions, about two minutes per caucus, and we start with the official opposition.

**Mr Parsons:** I don't have a question. I found that extremely interesting and informative.

**Mr Peters:** A couple of questions. Using the Crown Victoria as an example, you know that you can buy one off the lot for \$35,000, say, for gasoline powered. If you were to ask for that same package with natural gas, how much more is that car going to cost? A lot of Crown Victorias are being used by police services around the province.

**Mr Wolting:** Yes, and taxis. The option, I believe, varies from vehicle to vehicle. The average is a \$7,500 option. There are grants in place from the federal government. There's a \$2,000 federal grant if you buy an OEM vehicle and, at present, a \$1,000 provincial sales tax rebate from the province of Ontario. The utility company, whether it be Union Gas or Enbridge, kicks in \$500, and Ford Motor Co has a \$2,000 rebate as well.

**Mr Peters:** The second question is, we hear what gasoline mileage would be per kilometre; you get so many kilometres to the gallon. How would natural gas compare to the fossil fuel gasoline—higher or lower?

**Mr Wolting:** On a factory-built vehicle the natural gas is more energy efficient, so the miles per gallon probably would be slightly higher. On a conversion it would be about the same.

**Ms Churley:** Thank you for the presentation. We had a presentation in Ottawa as well this morning on this. One of the points that was made, and you've reinforced it, is that most people don't know about this. There are misconceptions, there are concerns about safety. I think a lot of people have fears of natural gas, thinking in terms, I suppose, of explosions. You put our minds to rest on that, I think, but there's a general public perception about that. But also, we were told that in fact there are people buying converted vehicles now they and don't even know it; that they're out there but that they're being sold from some dealers, and people aren't even aware that they're buying vehicles that have a partial conversion. Are you familiar with that or did I get it wrong this morning? That's what I thought somebody said.

**Mr Wolting:** I'm not sure I understand. There are customers buying vehicles with natural gas on them who aren't aware they have that option?

**Ms Churley:** Yes. Did anybody else hear—

**Mr Hastings:** If the make of the vehicle and the ethanol-added components in Ford products—

**Ms Churley:** So it was ethanol. OK.

**Mr Wolting:** In that regard, with ethanol, with that liquid fuel, that might be possible.

**Ms Churley:** But it's not the case with natural gas?

**Mr Wolting:** I don't think so.

**Ms Churley:** So that's only with ethanol.

**Mr Wolting:** I believe so.

**Ms Churley:** What do you think needs to be done—I know you spoke about this briefly—to make people more aware of this option?

**Mr Wolting:** We need to target the heavy users, the fleets, the police departments, taxis, and we need to get the message out. We've been trying to do that with a limited budget. It's just a matter of education. More infrastructure would help. We kind of have a chicken and egg thing. We need more stations so more people will buy vehicles, and we need more vehicles so more people will invest in putting stations in.

**Mr Hastings:** Gentlemen, it's an interesting case you make, but I'm not sure you're making the case. I'm starting to think we're getting all these technologies and there's better engineering—economic, environmentally sustainable. Where's your business case for natural gas vehicles in terms of the fleets? You say the PST exemption has been a success. OK. How much of a success? A limited success? How many fleets have been converted out of the potential number in Ontario or Canada?

You see, I'm having a problem and I think this committee is going to have an increasing problem as they start hearing more presentations about all the great advantages, and there inevitably are in a lot of these situations, but we have to look at some hard numbers as well. I'm wondering how many jobs are created, as an example. The corn producers said there are jobs created. I don't doubt it. How many? I don't need to have the exact number, but we're not getting a good, solid situation, as much as we can. I wonder if you would agree with that perception.

**Mr Wolting:** I know there are almost 13,000 vehicles in Ontario now. I can't equate that to jobs.

**Mr Hastings:** Does the alliance know about how many are in fleets out of that 13,000? Would there be 100?

**Mr Wolting:** I don't know. I might have—

**Mr Lacina:** There are certainly a number of fleets that would be considered large fleets, say, over-50-vehicle fleets. For example, here in London the Thames Valley District School Board has a fleet of approximately 75 natural-gas-powered vehicles in the commercial sector. As far as other applications, the city of London has all their ice resurfacers running on natural gas as well. That's a very strong environmental stance that the city has taken because the air quality in arenas is not great. As far as other existing fleets, they would be typically in the five- to 15-vehicle range, like plumbing and heating, the HVAC contractors, people like that.

As far as what the program has been in the past, it's been successful because there has been government leadership at the provincial level, as well as at the federal level. But what we're after today is an extension of the existing program to make that economic equation that we discussed that you want the numbers for. People judge with their pocketbooks and we need to make a more viable economic proposition.



**Mr Hastings:** Mr Ouellette would like to make a case against you.

**Mr Jerry Ouellette:** Essentially, the Alberta energy board claims that gas production will peak by the year 2003 and then decline 2% per year after that. Also the US energy board claims that by the year 2015 there's a 45% increase expected in demand for natural gas. The time frames for the new lines coming on, 2008 to 2010, will only replace the current use, never mind the increasing demands. How are we going to fulfill that demand? You mentioned the availability of service outlets, with 450,000 residents in the region of Durham and one location. Gas hydrates technology: how far along on that are we, and do we have any replacements to take into account the demand?

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**Mr Lacina:** Speaking on behalf of the natural gas industry, we're hoping to see increased demand for the product as a gas utility in the industry as well. The actual vehicle segment that we're addressing here I don't believe will tax the storage of natural gas or the existing supply, or future supplies to the point—I guess if it did we'd all be able to retire in the lap of luxury, if we had that many vehicles running.

Unfortunately, it's still an economic and environmental decision people need to make to adopt using natural gas as a transportation fuel. For example, the city of London here runs 48 buses on natural gas. The city of Hamilton was the leader in 1984 with the first transit property. They have, correct me if I'm wrong, well over 80 buses on natural gas right now. Those are some of our success stories, but there isn't the significant critical mass that I think would drain any source of natural gas away from a power plant in California.

**The Vice-Chair:** I apologize, but I do have to end the questioning there. Thank you very much for your presentation and for your answers. We really appreciate it and we'll take everything under consideration.

**Mr Lacina:** Thanks for having us.

#### PLUMWAY ENVIRONMENTAL

**The Vice-Chair:** The next presenters, Plumway Environmental, can make your way up. Are you Mr Kenney?

**Mr Robert Kenney:** Yes, I am.

**The Vice-Chair:** Welcome, Mr Kenney.

**Mr Kenney:** Thank you. I hope I have the right forum.

**The Vice-Chair:** You have 20 minutes, which also includes questions and answers if you would want to allow for that.

**Mr Kenney:** OK. I'd rather have the questions and answers. I'm one of the small companies in Windsor and we're in the plumbing, heating and electrical business. We do a lot of radiant floor heating. Over the years we've been working on developing a process where there would be a heat exchanger where we can use some existing energy that we are pretty sure is going to work.

There's some more research that has to be done, but we don't have the mechanism to take it public without losing the proprietary nature of it and we don't have the resources to complete the task in a timely fashion. We would like to be able to show the province what it is because we know there is an environmental benefit to it. We weren't doing it for an environment practice, but that fell out as a side thing, and when some of the engineers got into it—it's supposed to be profound.

**The Vice-Chair:** Excuse me. What exactly does your company do? What part of the environmental?

**Mr Kenney:** Mostly, we do plumbing, heating, air conditioning, electrical and a lot of radiant floor heating. In most cases with air conditioning you're moving heat from one place to another. You're moving it out of the house. You don't really cool anything; you transfer heat from one place to another.

With heating, if you're using geothermal or solar, you're doing the same thing: you're moving it from one point to another point. If you're using natural gas or electricity, you're creating it, you're burning it, you're using up resources.

We have a method of transferring heat that exists that would give possibly the same benefit as, say, a ground source or solar system that people can have in the country in an urban setting. Our footprint is probably between 100 and 200 square feet on the property. It won't be seen.

If we could show it without losing the proprietary nature and let your environmental people look at it, we're sure that you may want to participate. We will get to it eventually, but by the time we develop this thing, there'll be some legislation required to allow it. I'm having problems putting in a pilot program now because of legislation—the municipality doesn't understand it. It's cumbersome. If we do make it work, which I'm sure we will, there will probably be some legislation, not to make it happen but to allow it. It would be better for you to be involved along the way.

**The Vice-Chair:** Do you have any handouts or anything at all describing this?

**Mr Kenney:** No. What I would like to do is if there's some way we could have—I can give you an example without giving anything away. I think we can save between 15% and 20%—it's not a magic bullet or anything—on your heating-cooling bill. For instance, in cooling, we would be using your rainwater. We have a method to use the rainwater. Right now they're going around disconnecting eavestroughs because the sewers are overloaded. We have a way of controlling that, to leave all your things hooked up, use that for your air conditioning, because we want to transfer the heat from in the house to outside. So we'll let it go out into the sewer system where it doesn't hurt anything, and we have a way to do it, if that gives you an idea.

The same is true with heating. We have a mechanism like a heat exchanger that will work, but you have to see it. I have to be able to tell you about it.

**The Vice-Chair:** I think at this point, given that you aren't in a position—for good reasons—to show us your product, if you leave your name and your contact numbers with the clerk, confidential meetings can be arranged with staff from the Ministry of Energy, Science and Technology, and the Ministry of Economic Development and Trade, where you would not be losing anything or risking anything by having them.

**Mr Kenney:** That's good if we could do that, because I'm actually starting to feel guilty about how long this is taking. If I just put it out into the open, I'm going to be kicking myself for years for not keeping my mouth shut.

**The Vice-Chair:** We understand. Would that be OK with you?

**Mr Kenney:** That would be fine. I'd be happy if we could participate—

**The Vice-Chair:** OK. If you have a card or contact numbers to leave with the clerk, we can arrange for those meetings to take place. At this point, unless there's disagreement on the committee, there wouldn't really be much point in asking questions.

**Mr Kenney:** I am talking maybe only 15% to 20%, but that's less natural gas, less electricity. What I understand is that's exponential, the savings from the people to the environment, so—

**The Vice-Chair:** Well, we look forward to some day reading about it.

**Mr Kenney:** It's not a big thing, but—

**Mr Jerry Ouellette:** I'd just—

**The Vice-Chair:** It actually is the NDP's turn first.

**Mr Jerry Ouellette:** OK.

**Ms Churley:** No, go ahead. I'm interested. I understand you can't tell us all the details today, but I'm interested in hearing more about it in the future.

**Mr Kenney:** Thank you.

**Ms Churley:** But go ahead.

**Mr Jerry Ouellette:** You're speaking of new technologies and something new that you're trying to bring along. Have you accessed, or tried to access, any federal or provincial assistance?

**Mr Kenney:** Yes, the federal government is willing to pay to fund it—the National Research Council—but they want me to get involved with one of the major utilities, and I don't want to do that. I'm going to be affecting their balance sheet; it might be small, but how are they going to—

**Mr Jerry Ouellette:** OK. I'm just checking to see if you—

**Mr Kenney:** Actually, I should clarify something. It's not exactly new technology. I'm borrowing technology from other things to accomplish something that's new. The engineering challenges to make this work are minor. I've had professional people, like a doctor of engineering. The challenges are minor to make it work. The problem is going to be having government co-operation for making it work, and participation, because frankly, what's a lot of money to me is not very much in the scheme of things of what little there is left to do.

**The Vice-Chair:** Thank you very much, Mr Kenney. Please leave your contact numbers with the clerk, and those meetings will be arranged.

**Mr Kenney:** Thank you very much.

**The Vice-Chair:** Well, committee, for the first time in the day, we are ahead of schedule. Would you like to continue?

**Mr Jerry Ouellette:** Oh, yes.

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#### COLLINGWOOD UTILITY SERVICES CORP

**The Vice-Chair:** OK. If Collingwood Utility Services is here, we can begin. Please state your name.

**Mr Ed Houghton:** My name is Ed Houghton. I'm president and CEO of Collingwood Utility Services Corp.

**Mr Darius Vaiciunas:** I'm Darius Vaiciunas—I know it's a tough one.

**The Vice-Chair:** Not as tough as mine.

**Mr Vaiciunas:** You're right. I'm load management and regulatory coordinator for the utility.

**The Vice-Chair:** Welcome, gentlemen. You have 20 minutes, which includes questions and answers.

**Mr Houghton:** Thank you. I'm going to speak very quickly and then let Darius talk about the technical aspects.

First off, I'd like to congratulate you for looking into this, because I certainly think it's very much needed.

I wanted to give you a little bit of background on Collingwood. Even though we are small and we do live up in God's country, we have been very much involved with the deregulated market. In fact, we embrace the efforts of the government. Again, I'm currently president and CEO of Collingwood Utility Services. I have been fortunate enough to be on the board of the IMO, so I've been very much involved with looking at the new rules and regulations.

We've also been very much involved with the market commissioning task force putting together all the tools that are going to make the new systems work. Darius has been very much involved with the Ontario Energy Board with some of their task force, so I think that we do really know what we're speaking about.

I should say right off the bat that we're not here to sell you anything. Collingwood has nothing to sell. We just think that we have some experiences and we think that we have a system in place that others could have in place that could in fact help us reduce the requirement for fossil fuels. Again, we're not going to be talking to you about different types of fuels; we're going to talk to you about the replacement of those fuels, because, generally speaking, fossil fuel is used for peaking plants and what we're talking about is taking some of the requirements of that peak and putting it into the valleys of our management systems.

How did we start in Collingwood? We started almost like this, way back in 1995 when there was a capacity shortfall in the Collingwood area. We worked with the



old Ontario Hydro, and the solution that Darius is going to be talking about is the one that we came up with. It works very well today and is going to work very well in the future as long as the message we get across—hopefully through this committee—is that load management systems shouldn't be put on the backburner for first generation, what they're calling performance-based regulations, but should in fact happen today.

I'm going to give you a little bit of a scenario before Darius talks about it from a technical perspective. If I was to tell you that today Collingwood—and again I'm not selling anything, but Collingwood currently looks after what we call our Hot Water Dollars program, or load management program, where we actually control water heaters in Collingwood, Port Elgin, Southampton, Parry Sound and Thornbury. What we also do is actually control a small lake in Parry Sound.

What we do is when the system starts to peak, when there's a requirement to bring on those fossil fuel plants, we start shutting down water heaters. That doesn't mean that we're not going to allow people to have hot water. We actually manage the system.

This isn't new technology; this is technology that's used in the US. We also can use similar technologies for looking after heating systems and air conditioning systems. To give you another small example of that, if there are three people who need to have a heating system in their home and we know that a heating system uses about 20 minutes of heat an hour, instead of those heating systems coming on at will and causing a stacking of energy and the requirement for energy, and a requirement ultimately for a fossil fuel plant to be called upon, we're saying, "Let's manage that." Let the first household come on for the first 20 minutes and shut down. We'll call on the second household for 20 minutes and shut down. We'll call on the third household to come on and shut down for the final 20 minutes. Again, what we do is we have a lump of energy and we're not doing that times three, because as always, a lot of times those sit on top of each other. Those systems are available and, again, Collingwood is using them right now, and I think it is very wise for us to continue to use those in the future.

That's all I want to say. Darius is going to talk more technically in a minute here.

**Mr Vaicunas:** I just wanted to touch in on the fact that most of the time people think about load management from utilities as strictly a peak-clipping kind of concept. But when we stepped into the load management concept originally—and that's why I'm so pleased that this committee has been formed—we looked at load management as not just peak-clipping but a combination of a lot of different things.

The project that we got involved in looked at not just the peak-clipping portions, but it also looked at redistribution of power, bringing power in from other locations, releasing the load on particular substations and lines and transformer systems, and it really did make a big difference when we looked at the big picture. We talked to industries, we talked to the towns, we talked to the cities

and we managed the load growth within those municipalities in that area. So it's a total package. It's load management rather than just that one thing called peak clipping.

The technology, however, is really what we're looking at in trying to keep that alive. In the US, the technology for load management in managing loads or direct load control really took a nosedive when they started their deregulation process. It was going great guns; it was huge. In some places it was up over 300 megawatts of controllable load. If you think about it, that is a lot of significantly sized generation facilities. All they do is throw a switch and they've got 300 megawatts turned off at a really critical time. Typically, our peaks are hit in our province for only about maybe 100 hours of the year, period. That's really all we need to manage, rather than building generation facilities for 100 hours of use. That is something that is really embraced heavily in the US.

Once deregulation hit the US, the big problem became the G&Ts—the generation and transmission companies—that were operating those plants and the control facilities. The reason they ran them was that, rather than building another generation facility that would only run 100 hours a year, they decided it was much more cost-effective to put in load management operations. They could then mandate the use of these things throughout the various utilities they worked with and they could operate the systems when those peaks occurred. That saved them the trouble of building new generation facilities.

That was really great until such time as they deregulated, and then the generators' prime goal was no longer to make sure that there was sufficient capacity in those states, but their prime goal became their responsibility to the shareholders: make money; sell every kilowatt hour you can, whenever you can, wherever you can. So now building a plant and selling power elsewhere meant more money in the bank. So they started dropping all of their load management programs.

We're really afraid that if we don't embrace load management at the onset of deregulation here in Ontario, the same type of thing is going to happen. I know in the retail settlement code the OEB has stated that, yes, we do need to address load management. But unfortunately, they don't feel they have time to do it right away and they're going to wait until maybe the second generation of the performance-based regulations. So that could be two to three years down the road.

What that means for the existing systems, where people actually have things in their homes, is that the utilities have no way of maintaining those systems alive, and those systems will disappear, because you're not recognizing that customers work with you in this project. The customer is going to turn around and say, "Joe down the street isn't doing it. Why should I do it?" The social good isn't good enough for a residential customer, nor is the social good good enough for an industrial/commercial customer. They want to see something happen. There are ways, I'm sure, if we get together as an industry and work toward it and copy some of the success stories

we've seen elsewhere, not only here in Ontario but in the US and overseas, that we can actually come up with a good system of making sure that these things keep going.

I'm not going to go through this presentation verbatim because—I don't want to insult you; I think you can read—you'll have plenty time to go over it, and I think it'll be a lot more interesting that way. If you ever have questions, we really welcome the opportunity to chat. This is near and dear to our hearts.

But what I would like to do is take you over to one of the appendices, if you'll go back to appendix 8, a small graph, just so we can give you a good picture of how this actually works. Really, what we're trying to do is that during those short periods of time when there is a strict capacity shortfall or a requirement to bring on another fossil fuel generation facility to meet those peaks, rather than do that, we institute load management; we institute our load control. What that does is, it sheds that load. It doesn't eliminate the energy requirement. The energy requirement is still there. But it moves it over an hour or so. Once you've moved it over an hour or so, that peak has been taken care of. If you do enough of these things, and we currently in Collingwood, through our system, through our co-operative effort with all of these other utilities we deal with—Parry Sound, Port Elgin, Southampton, Thornbury, Collingwood—we actually, at the flip of a switch, can control five megawatts of load.

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Five megawatts may not sound like a big number to a generator, but back on July 24 the IMO itself turned around and made a big statement over the fact that they had just crested 24,000 megawatts, and once all of their numbers are in, they may actually exceed the all-time record high of 24,007 megawatts. They're talking about a really big deal about going over that extra seven megawatts. At that very time, we had five megawatts of power turned off and actually moved over into another period. So it would have been 24,012, had we not had our systems running.

It all adds up, and we're not the only ones out there. There are a lot of other utilities that have these things. That graph just shows you how it moves.

On the very next page: we ran a test. We went to an all-electric condominium in Collingwood that had 71 electric water heaters in it. What we did with those 71 electric water heaters was, we turned them all off at 8 o'clock at night and we turned them back on at 11. So any energy that those water heaters would have required during that period of time was still used, but it was used later on. The reason we did that was because that's when the prices were cheaper for the customers. So we're just giving them an opportunity to pay less for their power. You can see very readily in that graph, at 8 o'clock, when we turned off those water heaters, a significant drop in that load for that one building. You can also see at 11 o'clock, when we turned them back on, how the energy requirement for that building went up. That is a true graph, that's a real-time graph, and we monitored the loads in that building.

I think it's very important that we don't miss the opportunities we have. We don't want to fall into the same trap that we ran into in the US when they deregulated. Right now they are scrambling to institute new load management programs and basically resurrect things that they had in place. They had their answers in place and started taking them out. We don't want to miss that opportunity. We want to keep going with it.

I'll pass this around and you can have a look at it. This is a load controller. You'll probably recognize it as a thermostat that you might have in your home. But in the back there's a little module, and that little module is a controller that allows us, from the utility, to manage the load within the homes and move it around.

**Mr Houghton:** In the middle of August the province of Ontario actually peaked again at an all-time high of 25,190 megawatts. Collingwood, in our group, at that point had load management of about five megawatts. Again, to kind of give you an understanding of what that is, it's about 5%. So if the province could do similar efforts at 5%, 10%—and again, all we're controlling right now is water heaters; this technology is for heating and cooling systems—we think there's a significant gain for all of us. We look at this thing as truly being the environmental answer.

We're not here to say that the other alternative fuels aren't the right ones. In fact, they probably are. We haven't looked at them. We're not making comment on them. We're just saying we know that a true way of being able to do this is—when we are peaking, when those fossil fuel plants are being called on, what can we do to manage our loads? It's very simple to do so. Again, we're not inventing the wheel. It's already been invented. We're just utilizing it. We think that it's a wonderful opportunity for Ontario to do this.

Interestingly enough, Minister Wilson knows all about this. He's our local member of provincial Parliament, so we've bent his ear many times. He'd like to be able to implement it, I'm sure. I think if this committee wants to hear us talk about this, and we can actually show you real, live demonstrations—we do it for our board all the time and our council and neighbouring councils—we could probably talk about this for hours. It was pretty difficult for us to give you even a grasp or an understanding of it in 10 minutes. But we think that it is a wonderful opportunity for Ontario to do truly what's right for the province, for the citizens of Ontario and certainly for the environment, for all of us.

We'll be happy to answer questions.

**The Chair:** Thank you very much. We have about two and a half—maybe we'll let it go a little more. We should start with the government.

**Mr Hastings:** Thank you for coming, gentlemen. I know as a former Hydro board member in Etobicoke, Ontario Hydro used to be big on demand management and, as you say, it has taken a lower priority. My two questions would be these: (1) what would you figure would be a fairly realistic estimated number of kilowatts saved across the province if you had demand manage-



ment in place in every utility? Second, on a local basis, why isn't the town of Meaford part of your load management operation?

**Mr Vaiciunas:** I'll answer the second question first. The primary reason the town of Meaford is not part of it is because they are part of Hydro One. At the time, Hydro One was primarily a combined generation and they were interested in selling. They had excess power as far as they were concerned. That would be the prime reason why Meaford was not involved.

Second, in the documentation here you can actually see where some of the utilities in the US have—Florida Power & Light, for example, has 600,000 customers participating in their load management program. Having 600,000 customers gives them 700 megawatts of controllable load. That's a very real number. That's a very significant number.

**Mr Houghton:** If Collingwood can do 5% just with water heaters—and again, we have a fairly flat load in Collingwood because we have a good industrial base to Collingwood's load. In other areas, that 5% can be parlayed into something significantly higher. But again, if we could do air conditioning load in summer and heating load in winter, we can probably get that up easily to 10%. If we're looking at 24,000 or 25,000 megawatts, that's a significant amount.

**Mr Hastings:** Does Pennsylvania have load management?

**Mr Vaiciunas:** Yes, they do.

**Mr Hastings:** So you can't use the American equivalent of deregulation when we talk about California without including Pennsylvania, where there were hardly any problems in the development—

**Mr Vaiciunas:** That's correct.

**Mr Hastings:**—because they planned an adequacy of expansion plus the load demand, right?

**Mr Houghton:** Absolutely.

**Mr Vaiciunas:** Oh, yes, they have sufficient capacity for generation. However, they still have issues with requirements. They manage their loads based on peak pricing.

**Mr Parsons:** What's the reaction of the public? How did you sell it to the public?

**Mr Houghton:** I can talk about that. We went to the public. At the time, we could benefit the customer. We provided everyone who had a load management system installed on their water heater with \$5 per month, which really didn't mean a lot to the utility; it certainly seemed to mean something to the customer. We also had partners, like in Parry Sound and Thornbury, that offered nothing. We showed them how we could offer them system reliability and system security as well as what was right for the overall system, and that actually went quite well. Again, at the beginning we had the odd problem where we might have had hot water turned off at the wrong time, but we've now had six years of experience. We actually look at the demographics of the home; we look at the size of the water heater. To give you an example of that, a 40-gallon water heater with five peo-

ple in the home is first on, last off, and for somebody like me, who has a 60-gallon water heater with only two of us, it's last on, first off, so that people still have sufficient. It's almost not recognizable by the customer.

**Mr Vaiciunas:** Actually, when we instituted the program we went after the electric water heater market, of course. In the town of Collingwood we actually have about 80% penetration. So about 80% of the electric water heaters in Collingwood, both owned and rented, have controllers on them.

**Mr Parsons:** But in this apartment building, you shut the whole 71 down at once.

**Mr Vaiciunas:** We shut the 71 water heaters off, yes.

**Mr Parsons:** So if someone is taking a shower at 8, it's going to be 11.

**Mr Vaiciunas:** Someone taking a shower at 8 already started with a full tank of hot water. They wouldn't even notice.

**Mr Parsons:** But if you have four teenagers, numbers 3 and 4—

**Mr Vaiciunas:** If you had four teenagers, we wouldn't have you in that group. We subsegment the water heaters into many different segments and we control them in different resources. In the section here you'll see that I actually did run into problems with shift workers. We didn't realize that when shift workers came home at 9 o'clock at night, that's when they were taking their showers, that's when they were doing their cooking, that's when they were doing everything. We couldn't have them in the control period. We used them only for those other peak periods where it was really required.

1630

**Ms Churley:** Can you expand a bit on what happened when you spoke to OPG about this in terms of deregulation and possible impacts? I believe you said very quickly that you have had some communication with OPG.

**Mr Vaiciunas:** With the OEB.

**Ms Churley:** With the OEB. Can you expand on what you were told about why this can't be taken into consideration? I believe you said there was not enough time.

**Mr Vaiciunas:** Their primary reason is that they were just too busy trying to get deregulation in place and trying to get the systems in place for the actual market. Actually, in the code it does state that they don't have the time to address this properly and they're going to wait three years before they actually address the issues. Our concern is that three years down the road, everybody who has systems in there is basically going to be starting from scratch. We have to find a way to keep them alive.

**Ms Churley:** What do you suggest, then, can be done to do that?

**Mr Vaiciunas:** God, I hate to say from another committee, but I really believe we need to do that. We need to take a few people from the OEB, some people from the Ministry of Energy and some very interested parties and get them to sit down and work out the best way. Credits from generation: a large industrial customer can bid in blocks of load as a sheddable load; a large block of

residential customers doesn't have the same rights. We just need to find a way to address that in our current market structure.

**Ms Churley:** Thank you for alerting us to this problem. I'm sure we'll be pursuing it.

**Mr Gilchrist:** Chair, can you indulge—

**The Chair:** Just let him finish his comment, and then I'll come to you.

**Mr Houghton:** Sorry. I was going to also add that if in any way that sounded like a criticism of the OEB, it's not. We recognize that they've got the steepest learning curve of anybody, and they've done a wonderful job. We believe the time is now and we should be doing this and we shouldn't be putting these systems on the shelf. If we can articulate this to the OEB and show them that the market was originally set up so that residential customers see price signals—but the reality is that it's going to be a number of years before residential customers will ever be able to see price signals and react to those price signals, shut down their water heater, not do the cooking and the cleaning and those kinds of things during peak times. Because we don't have the proper metering systems in place, it's going to be a long time. We can do this now, because the systems are available now.

**The Chair:** I'm more than willing to allow some more questions. I know we're over the 20 minutes here, but we're way ahead on the total.

**Mr Gilchrist:** I have a very quick question. One thing I saw in your report—and forgive me, I've gone through and reread it a couple of times—what was the incentive for the people in Collingwood to sign up, the 80%?

**Mr Vaiciunas:** We gave them \$5 a month. The savings to the utility just on the power bill alone and the savings to Ontario Hydro's pool far surpassed that. We basically split the dollar savings we had from our energy purchases 50-50 with the customers and gave them \$5 a month.

**Mr Gilchrist:** You supplied the controller?

**Mr Vaiciunas:** We supplied the controller. The other \$5 and the savings paid for the installation and set-up of the system and to keep it in place.

**Mr Gilchrist:** Would the controller control more than one appliance?

**Mr Vaiciunas:** The controller we put in was specifically for one appliance. Other controllers can come with multiple relays in them so you can control multiple appliances.

**Mr Houghton:** Up to five or six channels.

**Mr O'Toole:** It's quite interesting, because my daughter is living in California. She can actually, through her computer at work, turn her air conditioning on. It's amazing. It's all connected through their network.

I just wanted to comment and compliment at the same time. It's not often we hear about controlling the demand line. I've never understood why rates went down the more you used. It's almost a contradiction. It encourages usage, really, or abuse. So I compliment you on that.

I'm interested to know that Floyd Laughren hasn't responded to managing the load, the peak load especially.

I fully agree, having sat on the previous select committee on nuclear energy and how they were going to meet these capacity peaks. You're right: once you've got the capacity, you want to sell the product. Which came first? If you've got plants lying idle, it's capital not being fully utilized, so it's kind of a cost-of-capital argument. But I fully agree with you. If there are more examples that you can relentlessly keep us posted on, at any venue, in writing, a format like this and to other members of other caucuses, I think it's an important thing. Really what it does is put the responsibility and the control in the consumer's hands. That's really where it belongs.

**Mr Vaiciunas:** Absolutely. I agree.

**Mr O'Toole:** It's for the household to decide to turn the dishwasher on after they go to bed, when the load peak has moved somewhere else. People need to be educated and they're not. But the moment they see their bill—if you use power from 8 until 10, it's going to cost you big dollars; if you use it from midnight until 4 in the morning, it's cheap power—people will start to move their habits around.

**Mr Houghton:** When they get those price signals they will. That's right, absolutely.

**Mr O'Toole:** Is that going to be part of the current mandate of the IMO?

**Mr Vaiciunas:** Part of the problem that we're going to—

**Mr O'Toole:** No, not the IMO—the energy board. Who is going to educate them?

**Mr Houghton:** It's actually going to be a combination, MEST and OEB, and we as LDCs need to educate as well.

**Mr O'Toole:** Good.

**The Chair:** Thank you very much for your presentation. Even single homes, if there was the encouragement to simply have timers and a decent-sized hot water tank, you would only need to really heat it at night.

**Mr Vaiciunas:** Timers are not a bad technology; however, we're moving into a very dynamic market where we've actually got hourly fluctuations in pricing and there's no way you can predict when those are going to happen. So if you're trying to react to price signals, a timer is just not going to work.

**Mr O'Toole:** It's all Floyd's fault.

**The Chair:** We're meeting him tomorrow. We'll have a little discussion with him.

Thank you very much for coming forward. We appreciate your innovative ideas.

**Mr Vaiciunas:** Thank you.

## COMMITTEE BUSINESS

**The Chair:** I would like to throw something out for committee consideration. Mr Gilchrist brought forward a motion when we were in Ottawa to be discussed later. I would like to entertain a discussion at this time and possibly save the vote until tomorrow, rather than putting pressure on members to feel that it's necessary to vote right now. But I think it's important—



**Mr Gilchrist:** Does that mean our next presenter is not here yet?

**The Chair:** The next presenter is not here; they cancelled. So if the committee would like to do that, we could do it now or we could adjourn and discuss it informally if you're more comfortable that way. I am at your disposal.

**Ms Churley:** I know the motion was put forward yesterday, but I would prefer to hold off on debating and voting on it until possibly tomorrow. I know we have a really tight schedule, but I need a little bit more time to consider it.

**The Chair:** What was going through my mind was just having a little discussion now, not necessarily debating it but a discussion so if there are some friendly adjustments, they could be made, and the concerns that some people may have. I compliment Mr Gilchrist for coming forward with some ideas like that. Rather than wait until we get heels dug in later on, if we can discuss our concerns, then maybe he might look at reformulating it.

**Mr O'Toole:** The proponent may want to speak to it.

**Mr Gilchrist:** Perhaps I might. First off, one of the options is to make it severable. I think the first challenge we have before us, recognizing the very tight time frame the committee is operating under, is to identify, after hearing from the presenters or as we go along through these presentations, precisely where the expertise lies that the committee should hold further consultations with, and what venues would be appropriate opportunities for us to see the technology in play. When you talk about wind, we only have to go as far as Pickering to see the largest turbine in North America, and undoubtedly we will avail ourselves of that opportunity. But I would submit to you that we need to start working now and we need to set a deadline that is reasonably tight to identify all the likely venues worthy of our attendance. At that point we would be in a better position to plan the logistics and the subsequent events that have to take place prior to our preparing a draft report.

The other motivation behind this motion is that in three weeks the House comes back, at which point all of our schedules become very strained in terms of trying to balance the demands of sitting in the House, and votes, with the work that has to be done on this committee.

1640

I guess the most compelling part is the first part, that research and the clerk compile a list of appropriate venues and circulate that list to committee members for our feedback and further discussion. I have proposed that that list be prepared by September 7. That gives us some wiggle room in terms of then responding and scheduling things before the House comes back on the September 24.

The second general topic in there is the designation of specific technologies to individual members in order that we can multiply our research efforts by a factor of eight and, quite frankly, recognizing that we have set a travel budget that doesn't allow the entire committee to go to

every venue to look at every possible technology. It's also not necessary for 14 or 15 of us to all go and look at the same turbine and pick up the same brochure. What is essential, though, is that somebody goes and looks at that turbine and is in a position to comment specifically on what they heard, on what they saw, and the credibility of the technology, in their opinion.

The first issue, I submit to you, is the identification of where it is we need to go or who we have to speak to. The second is to look at the range of technologies. If there is anything missing on that list, I think there, too, if folks could make their comments tomorrow, if not today, that would allow us an opportunity to at least further consider the idea of designating one or more members to specific technologies.

The final point I would make is that I have set a time frame that I thought gave us an opportunity to have a fallback position. I have said "start of constituency week" recognizing that if we don't meet that, at least we still have some time before the first of January, which I seem to recall from our first discussions was the general time frame we had hoped to have our first draft report ready. Then, as you will recall, on the first day we said that after that we would go out to the public for a second round of hearings. Recognizing that we've got that requirement and then a May 1 final deadline, I'm just working backwards from that.

So that was the inspiration for the motion. It's certainly severable. If you like the first part, of at least identifying the "where," that might be something that we could decide today, and the folks back in Toronto in research could start applying themselves to looking up addresses and names of experts on the various technologies.

**The Chair:** Thank you. I think Mr O'Toole and then Dr Bountrogianni.

**Mr O'Toole:** Mrs Bountrogianni can go.

**Mrs Bountrogianni:** Thank you. I do agree with the first part. I don't know if September 7 is possible for research, but I do agree with the first part to give us a start of where we are and then we can each also contribute to that list as well.

I really think November 10 is an untenable deadline. I was planning on using constituency week, for example, or at least a couple of days of that, for visiting some sites. My schedule for the next three weeks is pretty full. If the committee changes—I will do whatever the committee wants, but it would be very difficult at this point for me to change what I had envisioned.

I could be wrong, but I don't see that we have to abide by the November 10 deadline. I understand that things always take longer than you plan, and so being conservative—pardon the term—

*Interjections.*

**Mrs Bountrogianni:** I understand that, but I had in mind January-February for travelling, actually, when the House wasn't sitting.

**Mr Gilchrist:** If I could respond—

**Mrs Bountrogianni:** Can I just finish?

**Mr Gilchrist:** Sorry. I thought you had.

**Mrs Bountrogianni:** I agree with the spirit and with the content of your motion, with the exception of the deadline. I think that is really pushing it, and I'll be honest, with my personal schedule for the next few weeks it would make my life very difficult.

**The Chair:** There's something we haven't discussed and that's what we're aiming for in the interim report versus a final report, and that may govern some of what Mr Gilchrist is suggesting here. What are we looking for? If we're pushing to get all these visits in before the interim report, what's left for the final report? Maybe the subcommittee should wrestle a bit with what we want for an interim report. Are we going to just fine-tune it for a final report? Are we going to have generalities in the interim? It's something we have not discussed at this point in time. After this discussion we may want to refer to the subcommittee to wrestle this out a little more. But I thought maybe it would be healthy to have a bit of discussion right now.

**Mr O'Toole:** I really appreciate Steve trying to bring some form—form follows function or something like that. I think, first, that it is expeditious to find some way of agreeing. Specifically, the pressure on someone like Marilyn, where there's only one person, having to have all her time dedicated to following all the technologies is almost impossible. Nothing is impossible, I suppose. I think identifying the technologies you're interested in isn't dismissing yourself from all of the other engaging conversations, by any stretch, or sharing or saying, "I need to know more about..." I think being able to schedule the travel so staff can line up if someone is specifically interested in wind power, which I am—there are three or four examples in my own area. I would disclose a couple: nuclear and wind would probably be my two key ones, and whatever they suggest is the best possible demonstration. I think it's up to staff. I've got no predisposed idea of where that is. I think, part one, I could split it.

Part two would then come back to me. I think the subcommittee is mandated to come up with what the interim report would look like and then go about doing that business. That may mean there may be a different time for travel. Maybe it would be when the House wasn't in session, because I don't know how you can do it, and after September 24 how it's even possible. I wouldn't recommend it. In fact, constituency week—I've got to get re-elected so I'll be in the constituency.

**Ms Churley:** Is that going in Hansard?

**Mr O'Toole:** Seriously, I'm saying constituency week is very important for us in rural ridings. These are very important times for agricultural communities. This is when all the meetings are held. They kind of get off the land. They're dealing with the farm support program. It's huge in my riding. I don't have a free night during that week. It's Remembrance Day and all the rest of the stuff. I'm not away.

**Clerk of the Committee (Ms Tonia Grannum):** We can sit when the House is sitting. We can travel when the House is sitting.

**Mr O'Toole:** Yes, I agree. If we can just find agreement on people identifying one or two technologies so we can collectively have some further and deeper insights into some areas. That doesn't dismiss us from being interested in all the areas.

**The Chair:** I think it's starting to fall into place.

**Ms Churley:** I have concerns that it's going to be a very busy month for me for a number of reasons.

**Mr O'Toole:** A by-election?

**Interjection:** Nutrient management.

**Ms Churley:** Nutrient management and other things as well going on this month. Having said that, I have a couple of other things to say, but I wanted some clarification because I don't have it in front of me about the dates around the mandate. We just raised the possible idea of an interim report, because I view this committee as finding out as much as we can to the extent we can. Most of us, if any of us, aren't engineers or scientists, with the exception of maybe—

**Mrs Bountrogianni:** Ernie.

**Ms Churley:** That's right. We're not going to understand in depth any of these technologies, so we certainly need the backup research. We're not going to be able, in such a short period of time, to come back to the Legislature and have a full-blown recommendation of, "This is the energy policy alternative, green policy that we have for the province for the next umpteen years." It's far more complex than that. For instance, I have an interest in, as opposed to the technologies, the conservation efficiency and the economic tools, which I notice is in there now.

Having said that, the other thing I wanted to say—and I know we don't have time to have an argument about this now—is that I don't believe that nuclear and energy from waste should be in here. They are old technologies. Some would argue, in my view, that this committee is about looking at the newer, emerging, cleaner technologies. After having spent years travelling and looking at energy from waste, although there is newer and better emission control technology, I believe those are two that we shouldn't even have in this list, and I want to submit that they should be removed.

1650

**The Chair:** I think we've had a reasonable discussion. I'm hearing that we provide the staff and put this package together by September 7. The first half of the motion is generally being accepted. There are some concerns as it relates to November 10. So possibly what might be considered—I won't ask to call a vote now; I'm hearing that the researchers may need a little wiggle room there—is that we look at asking for a report from staff somewhere around September 7 and then the subcommittee meet to try and work out the details to flow from there.

**Mr Gilchrist:** If I may just respond to what I'm taking from the chronology there, I would be reluctant to have the subcommittee wait till September 7, because I will



guarantee you that just means we've lost the rest of September. We couldn't respond reasonably after that and expect people at the other end to clear their schedules for us on short notice. I think the subcommittee has to meet now, in the next day or two, while research is doing their thing, to identify what is reasonable.

I would remind you—and, Marilyn, I am sure you will recall—that on our very first meeting we talked about two rounds of public hearings, the second one to occur after we had made our preliminary decisions and general direction. We have already budgeted for two rounds of advertisements, for example, to tell people about the second. If I have misconstrued something, then this is a good chance we have here today to debate it.

It seemed to me, then, that if you're working backwards from May 1, you have to allow time to reflect on what we have heard at the hearings; before that, to have heard the hearings; before that, to have called for the hearings; and, before that, to have prepared the interim report on which the hearings will take place. If January 1 is overly aggressive and you think we could digest all of those things from February 1 onwards, then January all of a sudden becomes an option.

I'm happy to amend November 10 to anything else—January 1 if you like—but I truly believe that we're going to fall behind the curve here if we don't start as soon as each of our schedules allow, and I appreciate that means different things to different people. At the same time, if the House leaders want to do what is done every day down in Ottawa and guarantee pairing so that we can be away from the Legislature, knowing that, in any vote that takes place, that has not compromised our respective parties' ability to do our respective thing, then that's obviously another wrinkle that we've got to discuss and we need that feedback from our respective House leaders.

I think the concept of at least recognizing that we've got an awful lot to digest in the next few weeks is all that I'm trying to embody in this motion. If changing November 10 to something before the House rises, recognizing that once you get into Christmas and early January it's very difficult to get people back to Toronto, if Ms Churley and Mrs Bountrogianni would be more comfortable with even December 15 as a time frame to have digested the pure research, have all the documentation back in our hands and, if over the Christmas break you want to reflect on everything we've heard in hearings and in site visits, then maybe that still gives us the time to respond.

**The Chair:** If I can just make a comment, I'd like to call on our researcher for a comment. I'm struggling with the interim report versus the final, what it's going to contain and what the urgency is or isn't. We're almost getting into my dinnertime, and food and I get awful close together, so maybe we can hear from the researcher, and then we might look at possibly over the lunch period tomorrow having the subcommittee meet. I appreciate your comment on having the subcommittee make sure things keep moving, because you're right: if we wait until after the 7th, the following week I'm on the road solid. I'm not sure when the subcommittee would meet.

So that's an excellent point. Maybe we can just hear a few comments about putting these reports together. That might be helpful for our deliberations here.

**Mr Jerry Richmond:** I won't keep the Chair from supper. I act at your behest. I'll just share with you some of my experiences over 20 years around the Leg here, working with other committees, previous energy committees that also did interim reports. I might throw out some timelines but they're not cast in stone.

What I'm hearing during these hearings I think is very positive. We've had some general overview information from the government ministries and departments, and today we're starting to hear from various stakeholders, who I hear putting together suggestions, recommendations, findings. As you know, I am doing a summary. Some of you have probably seen the summaries we've done for thematic committees before. We capture the main findings, recommendations of the witnesses.

I'm still juggling, but I'm seeing general information and then recommendations related to the various forms of alternative energy or fuels. Out of these deliberations this week, when I prepare the summary, what I was sort of thinking of was using that summary, presenting it to you, and that could lead you into an interim report. What I was sort of thinking of—and the time frames aren't carved in stone—was that the committee would probably get an interim report out before Christmas that you could table in the House. You know if you have other timelines, but that was my general thinking from past committees.

I think the summary should provide you some direction. The Chair asked me what's the difference between an interim and a final report. My general thinking is, the interim report would represent the preliminary findings and suggestions in terms of policy direction of the committee. You may in the interim report only identify areas in a preliminary sense that you would want to, say, after Christmas, go into in more detail. That's sort of what's happened before. Committees have acted on that basis.

In terms of the time frames I'm hearing here of members' concerns about other obligations in the House and their ridings. What previous committees did in the past—and I'm not passing judgment—in terms of looking at alternative energy sources, rather than visiting, although you may decide to do some focus visits, was to commission focus studies. What I see as a possibility here is, your basic theme is, what role, what function, future role—whatever—economics, does the range of alternative energy types have for Ontario, whatever you deem those types to be, the dozen or so? Whether you include nuclear or whatever else is entirely up to you.

So what I'm saying is that previous committees, in view of the tight time frame and the other obligations of the members, have commissioned learned studies from experts who have assessed—and the theme here seems to be inside and outside Ontario—who are the leaders and what are the potentials of these various alternative energy sources. You could—my suggestion—commission those studies. If those studies identify to you—let's say Den-

mark is a world leader in windmill technology, and the committee felt it advantageous to visit Denmark; you could conduct a more focused visit. That's my thinking.

In terms of the final report, my general thoughts: the interim report would sort of set the general directions. I think this week of hearings will be valuable once you see the summary. I'm getting some ideas, and certainly I'm open to any suggestions. I think the summary could set you in good stead to prepare an interim report where you could address things in an interim way. If you felt certain technologies merited further study or had further applicability to our province, you could focus in on those and address them in greater detail in the final report.

So those are my thoughts from past experience, but I'm of course open to your direction.

**The Chair:** Could the committee consider leaving it with the subcommittee for a discussion over the lunch period tomorrow, and then we would address it either late on Wednesday or on Thursday? Probably if we address it late on Thursday, we'll make a decision quite quickly.

**Mr Hastings:** That would be fine, Mr Chairman, if the members' views are taken into account. I want to reiterate my disappointment somewhat in that what I see occurring is that essentially we're going to have a select committee in its traditionalist mode in dealing with the issues, whatever technology or however you deal with the interim report. It is not going to engage people as it ought to.

I think the Web site ought to be a much more key, central provider of access to information, because you've got lots of people who aren't going to come to this kind of a committee because of a whole set of constraints on their time. That is my key concern that I raise.

The second one: what should be in an interim report? I think Jerry's got a good handle on that, but I think it should also deal with the economic and financial or fiscal side of these technologies, because we're getting groups presenting, they're putting their best foot forth, which is what they are required to do, but we need more specific economics of these. Maybe that's where the special studies might come into play in what you would have as your content of an interim report. Those are my primary considerations.

**The Chair:** Thanks very much, Mr Hastings.

There's something that we haven't discussed at all, and that's meeting on a reasonably regular basis during the fall term, possibly a weekly basis, when we can invite in various delegations to look at in depth and some activities. We may want to go out to the marketing—I don't have the right terminology—IMO out in Mississauga. That's something we could do some morning when the Legislature is sitting.

So, with your indulgence, I would like to adjourn for dinner.

**Mr Gilchrist:** Recess.

**The Chair:** Recess. We're adjourned from Ottawa, but we're recessing for dinner and we'll reconvene at 6 o'clock sharp. Thank you very much.

*The committee recessed from 1701 to 1758.*

## CANADIAN WIND ENERGY ASSOCIATION

**The Chair:** I call the committee to order. Our first presenter for the evening is Zephyr North and Canadian Wind Energy Association, Jim Salmon. Please state your name.

**Mr Jim Salmon:** My name is Jim Salmon. I'm representing the Canadian Wind Energy Association. Mr Galt, Ms Grannum and committee members, thank you very much for inviting me here tonight.

I'm going to speak quickly because I'm going to try to give you two little talks. I apologize to the people here who have to crane their necks.

My talk is about wind energy, and it's based mainly on this document recently produced by the Canadian Wind Energy Association, of which, I should point out, I'm the past president. It's called Wind Vision for Canada. It's using Canada's wind energy potential, which we believe is 10,000 megawatts of installed wind capacity by the year 2010, and that's called "10 by 10."

Let's get some background about wind energy. It's the fastest-growing source of electrical energy in the world. Its five-year sustained growth rate is 32%. It's a \$7.5-billion industry—that's Canadian dollars. It grew from 13.5 to 17.7 megawatts in the year 2000. The Ontario grid capacity is about 23,000 megawatts, so at the end of this year or next year it will surpass the capacity of the Ontario grid. Ontario currently has 0.6 megawatts of wind capacity. That will quadruple to 2.4 megawatts tomorrow in Pickering.

Why would wind energy be interested in Ontario, and why should Ontario be interested in wind energy? The investment in wind energy represents a huge opportunity. It's a huge growth industry. It is the most cost-effective source of new energy in some jurisdictions. When you count environmental externalities, it's probably the most cost-effective in just about every jurisdiction. I think it's worth comparing it to the oil sands.

If Ontario embraces wind energy and an industry is created, it will create thousands of jobs. It will limit the emission of air and water pollutants. There are a lot of electricity-generating sources that cause problems for the water supply and, as we all know, that's beginning to become problematic in Canada and elsewhere, as well as greenhouse gases.

There will be a concurrent reduction in health costs if those things happen. It will secure an abundant source of green power for Ontario and Canada and it will ensure against electricity price spikes. Once you've paid for your wind turbine, you've paid all the costs except maintenance, and it's pretty well known what that cost is.

What's the cost of inaction? Essentially, it's the loss of being in the market, of being part of this explosive growth of electricity generation.

Who in the world is participating? Shell certainly is. Shell predicts that 50% of world energy—wind energy; sorry, I should have made that clear—will be sustainable energy by 2050. BP thinks the same thing and says that loudly. The European Union expects 22% of its elec-



tricity to be renewable by 2010, and most of that will be wind energy. In the US they expect to have 5,300 megawatts of wind energy by the end of this year. That's happening in the Midwest, Texas, California and New York. There are a lot of states where wind energy is starting to take off.

In Denmark, 17% of electrical energy is already supplied by wind energy and up to about 75% in some of their jurisdictions. There really are no major problems with that; obviously there will always be problems with any energy generation source. One of their problems is that they've too much wind energy some of the time and they export that; they sell it.

Companies getting interested in wind energy or companies which are actually already investing in wind energy in Canada are Suncor Energy, Ontario Power Generation, Shell, TransAlta, Enbridge, Enron, BC Hydro, most provincial utilities—Hydro-Québec should be added to that—just about all the major energy players. I don't think Imperial Oil will ever be interested.

CanWEA's goal of wind vision for Canada is, as I said, to install 10,000 megawatts of wind power capacity by 2010; that's "10 by 10." That would be 5% of Canada's electricity. That 10,000 number didn't come out of the air; it came out of the electricity table of the climate change implementation tables—I forget the exact name. In that table they did a lot of modelling, a lot of study, a lot of research and they discovered that if the price of gas were to go up—and remember they were doing this two years ago—that 10,000 megawatts of wind energy would be the most cost-effective way of meeting Canada's Kyoto commitment. As we know, the price of gas has gone up.

What are the benefits to Ontario? These are the benefits to Canada if we install 10,000 megawatts of wind power: \$10 billion to \$20 billion of economic activity. I should note that if Ontario pursues wind energy, if Ontario makes it attractive for wind energy to happen here, my guess is that half of these benefits would accrue to Ontario; if Ontario aggressively pursues wind energy, I would say well more than a half. So \$10 billion to \$20 billion of economic activity; aid to 160,000 high-quality jobs—these are good, well-paying high-tech jobs; a contribution to clean air, and human health benefits that come from that; a reduction of 15 million to 25 million metric tonnes of greenhouse gas emissions; and 30 million megawatt hours per year of renewable energy at a stable price. So no Californias; no Albertas.

What can Ontario policymakers do to help make this happen? It falls under three categories, and there are a lot of specific things that can be done.

One is to ensure non-discriminatory electricity market access. I would point out some things that are happening in Ontario now. The Ontario emissions trading regulations which recently have been published are problematic. They don't allow clean energy to participate in that emissions reduction market. There is no incentive whatsoever for wind energy to be in that market, to produce clean energy. The environmental assessment regulations

which are now on the environmental registry penalize wind energy too. They make it harder for wind energy to pass an assessment, and it's mainly in terms of quantities.

Market stimulation: we really need some sort of early-stage incentives. None of our electricity sources made it on their own. If you look at the example of nuclear energy, it certainly didn't get here because people wanted nuclear energy and the commercial nuclear energy market put it there. Wind energy, renewable energies, would like to see early-stage incentives. These are such as production incentives, consumer credits, RPS standards, which you may have heard of; if not, you will later on this week. These have proven very effective in the US. There's a great, long list of other ways to promote sustainable energy. These are a few that we think will work in Ontario and in Canada. And leading through example: Ontario could buy sustainable energy, renewable energy. That would be one way.

There is a page in that document which you all have—I'm not going to go through all of this—that's a pretty succinct summary of what government, mainly, and industry can do here to promote wind energy. A careful reading of this would allow you to—well, you can read this and then decide which of these Ontario might be able to support.

This is the end of this part of my talk. What's the prize in this? The prize is that Ontario would participate and it could gain leadership in a huge global industry. Again I point to the oil sands. It was something the promoters had to get into at the beginning. They had to take their losses at the beginning; they had to make it happen. They did make it happen, and now they've got the prize, which is billions of dollars. The prize here is the same. There are leaders in wind energy. They are Denmark, Germany, the United States to some extent, but in North America there is only one company that makes wind turbines: Enron in California. Ontario has the opportunity. Ontario is the place that it can happen. Ontario has the industrial background; Ontario can have a domestic market. It's got the people with the skills to do it. It just has to want to do it. And there are all of those other benefits which I had mentioned before.

That's the first quick half of my talk. When I give talks about wind energy, which I frequently do, I always get the same questions, so I'm putting up the list here and I'd like to know if you would like me to answer any of these questions.

**Mr Jerry Ouellette:** All of them. Number 4.

**Mr Salmon:** Number 4? I'm going to answer number 1, "Is there any wind resource in Ontario?" whether you want me to or not.

**Ms Churley:** I do.

**Mr Salmon:** OK, good.

**The Chair:** They tell me there's a lot around Queen's Park.

**Ms Churley:** Speak for yourself.

**Mr Salmon:** Let me do number 1. There has been a limited study of the southwestern part of Ontario, and this is part of the results here. Those lines that show "6.0"

there, that's six-metres-per-second wind speed at 30 metres above the ground. That's a pretty decent wind resource, and it happens around the lakes.

**The Chair:** Could you help me just for a second, in metres per second equalling miles per hour? Have you got a conversion at any point?

**Mr Salmon:** I think it's 2.2, so that would be—what?—15.

**The Chair:** Thank you. That's helpful.

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**Mr Peters:** Could you provide us with a copy of that?

**Mr Salmon:** Yes, I can.

There's another map. That map was derived from wind speeds measured at Meteorological Service of Canada stations at points throughout the province. This one is a derived map done by, again, the Meteorological Service of Canada at their computing facility, the same facility that does the weather forecasts. This is a different model from the weather forecasts, which they've used and run over four years of forecast data, essentially the same model as input to this model, which then calculates the wind energy statistics. That scale up the side shows that the reddish numbers are better than the blue numbers.

If you look at Alberta, this is where all the activity is happening here in Canada. It's this light blue colour. In Ontario there's a fair amount—as a matter of fact, there seems to be more light blue than there is in Alberta. So again, this is driving activity in Alberta. There's lots of light blue, and that light blue should actually extend a little on to the shorelines, wherever it's on the lakes. This scale, by the way, is watts per square metre, which is a way of measuring wind energy, which I will explain to you if you want.

*Interjection.*

**Mr Salmon:** OK. I've just blown up that map. It's pretty chunky, but you can see that within the southern part of Ontario there's lots of opportunity for wind. Wind energy requires three things, among others: it requires wind, land to put your wind turbines on, unless you go offshore—let's not talk about that—and it requires a market. Southern Ontario has all of those. It's in a terrific position, I think.

Look up along Hudson Bay and you can see offshore of the bay that there's a good resource, but it's offshore. Nobody is going to build a wind turbine in the middle of Hudson Bay, and even if they do, the market is so limited that there's no point in doing that, and it's a lot better on the Quebec side than on the Ontario side.

Just to show that I'm not making this up, this is a map produced in the United States, essentially in support of their wind energy programs. Like all US maps, it stops right at the border, but you can see that all around the lakes it's dark blue—on this map dark blue is good—and that extends to the other side of the lakes. By implication, you can see that that is going on.

One question that often comes up is, why does it take so much area? I won't answer that one, because nobody asked me to, but I will put up this one slide. That's a big red dot over Queen's Park—

**Mr O'Toole:** It should be blue.

**Mr Salmon:** The colours are not significant. That is the amount of land that is taken out of previous use. For example, if you put wind turbines on a farm, it would take some of that farmland out of use; you couldn't use it for farming. But you can use the land all around wind turbines. Animals are not afraid of them. They don't have any problems with them. It takes no time at all for them to get used to them. They don't even notice them. When they do notice them, they come up and scratch on them. That's what they like about them.

That's the amount of land you would have to take out of permanent agricultural use, for example, to produce the same amount of energy as a 540-megawatt nuclear plant.

**Mr O'Toole:** That's the same amount of land that a nuclear plant takes.

**Mr Salmon:** It's close. I do the same calculation there. I have a lot of numbers here. See now, this way I suck you into answering that question.

**Mr Gilchrist:** Is it too soon to make a recommendation that we clear that very land?

**Mr Salmon:** I did this calculation because people always ask this question. It's on the next page. Here, if you look at point of interest number 7, the amount of land the Bruce nuclear station takes up is the amount of land that would be required to support 6,480 wind turbines, which is about six 540-megawatt nuclear reactors. I think there are eight at Bruce.

But again, just so it's clear to you, this is not the total amount of land these turbines would sit on; this is the amount of land they would take away from other use.

**Mr Gilchrist:** What would the cost be for 6,480 turbines?

**The Chair:** Maybe we'll let him finish his presentation.

**Mr Salmon:** A lot. And you wanted number 4, which was?

**Mr Jerry Ouellette:** Noise.

**Mr Salmon:** Noise. This is a graph of the noise that a typical wind turbine makes. It's the solid line there. All these other dots are background noise in a typical urban or rural setting, although not many turbines are in urban settings.

You can see what happens. The turbine doesn't really operate until about this speed here, so it's noiseless up to here because it's not running. So this is the background noise. When a turbine starts, the noise level is here, which is just about the same as the background noise level. This is the noise of leaves and bushes and stuff being blown around.

Once the wind speed goes up, the background noise level goes up much faster than the turbine noise level, and that's typical of just about any place you might put a turbine.

**Mr O'Toole:** Why is that? Does it magnify it or reflect it, or what?

**Mr Salmon:** The noise that you get from leaves and bushes adds together as the wind speed gets higher and



gets louder, whereas the turbine noise is aerodynamic noise, unless there are a whole lot of wind turbines there. There is no opportunity for it to magnify itself. That's my simplistic explanation of that.

**The Chair:** Maybe we'll let you go ahead with your presentation. You have about three minutes left, so I don't want to interrupt too much.

**Mr Salmon:** Basically, the point here is that the House of Lords in England did a study on wind energy, and their results were that, thanks to improvements in technology, noise is no longer the issue it once was. That was their conclusion on noise.

I think that's about it. This is the existing wind turbine in Ontario, right there. That's the one at the Bruce nuclear plant. It's a Tacke wind turbine, 600 kilowatts. These are pictures of wind farms. Not too jammed together, as some of them are in California, which were badly designed.

That's it.

**Mr O'Toole:** What about the—

**The Chair:** Just a minute. We're really out of time. Maybe 30 seconds from each party for a comment. Official opposition, any comments?

**Mr Parsons:** Is there such a thing as a wind turbine that, rather than the blades, is a vertical screw? Someone told me that, and I've not actually seen one—

**Mr Salmon:** Yes, there is.

**Mr Parsons:** Kind of an Archimedes—

**Mr Salmon:** As a matter of fact, Canada used to be the world leader in the design of those turbines, but they never received any promotion or support. There is one company in Calgary which has certified one of those wind turbines, but other than that, I am not aware of any that are commercially available. But there have been lots of examples. There's one huge one in Quebec.

**Ms Churley:** No time, but I understand that OPG is able to use the emissions trading credits for the turbine they're putting up in Toronto. On the other hand, you said that wind turbines can't be, under the existing laws, part of the—sorry, I feel so rushed, I'm not being articulate—

**Mr Salmon:** No, I think I understand what you mean.

**Ms Churley:** —part of the emissions trading.

**Mr Salmon:** OPG can use it because they can offset it against their emissions.

**Ms Churley:** Exactly.

**Mr Salmon:** I can't use it. I can't put in a wind turbine and use it, because I have no emissions.

**Ms Churley:** OK.

**Mr Jerry Ouellette:** What's the smallest size available? Are there ones available for a household that you can implement on an old TV tower, things along those lines, or not?

**Mr Salmon:** Yes.

**Mr Jerry Ouellette:** There is? So what size and what kind of production capacity?

**Mr Salmon:** A typical house, you'd want a wind turbine which is about a kilowatt in size, so the blades would be about six feet in diameter. You might want

something a little stronger than a TV tower to put it on, and I would highly recommend not attaching it to your house.

**The Chair:** Thank you very much for your presentation. From the enthusiasm, I think you had better stand by for recall. We may be calling you back, because there's a lot of enthusiasm. Probably the committee will be meeting during the fall and may want to invite you back.

**Mr Salmon:** Sure. Thank you very much.

**The Chair:** Thank you very much for an excellent presentation.

1820

## ARISE TECHNOLOGIES CORP

**The Chair:** We move on now to ARISE Technologies Corp, Michael Ben and Ian MacLellan. Welcome. Just state both your names for the sake of Hansard.

**Mr Ian MacLellan:** I'm Ian MacLellan. I'm the president and CEO of ARISE Technologies. Michael Ben is our chief financial officer. First of all, thank you very much. My expectation was to give a crisp 10-minute presentation to give lots of opportunity for questions, so I would like to get right into this.

What I thought we would do is give a very brief introduction to ARISE, talk a bit about an overview of solar energy, give a couple of international examples of what's going on and talk about the opportunities for Ontario and some specific recommendations for the committee. What I have also enclosed in a handout is a copy of the slides and three interesting articles from the most recent issue of Renewable Energy. That gives a lot of the more detailed data for you to take a look at.

First of all, solar energy is very complementary with wind. Typically you get more solar energy in the summertime and you get more wind energy in the wintertime. They work very nicely.

There are basically five different types of solar energy that I would like to just touch on. What has captured the attention and interest of most people is solar electricity, where we are generating electricity directly from the sun. This is the type of technology that has been used in satellites for many years. Solar thermal uses the sun's energy to heat up, typically, water or some heat fluid. Passive solar is a building envelope-type design where you're making the building more user-friendly with the sun to capture energy. Natural daylighting is using natural daylight to reduce—right now we're using electrical energy to light this room, but it's sunny outside. If you design the building to use more natural daylighting it's actually more comfortable. Natural cooling is a building technique to use solar energy to actually cool the building.

ARISE Technologies is predominantly a research company, although we do have revenue. This is the home I live in. This is probably considered by many people in Canada to be the most advanced solar home in Canada. We're using all five types of solar energy in the home to

dramatically reduce the amount of energy used. The middle part is five kilowatts of grid-connected photovoltaics, or solar electricity. On a sunny day we're generating more electricity than we use in the home, and we're feeding that energy back into the electrical grid and our electrical meter runs backwards.

We're using solar thermal on either side. It's hard to tell from this picture, but we're heating up water and we're providing all of the pool heating. This summer our pool was typically around 85 degrees—just right. We're also using it to preheat our domestic hot water and to preheat space heating. This summer I think I'm the only one who's talking about having an excess harvest. The farmers certainly aren't. We actually turned off our gas backup for hot water and were on 100% solar hot water while having a very comfortable pool. Also we used some passive solar, with all the south-facing windows. The clear storey at the top lets a lot of natural daylight into the space and the greenhouse acts as a chimney for the solar cooling. We had no mechanical air conditioning in the house and the house was very comfortable.

With that project, we were invited by the Canadian government to represent Canada at the International Energy Agency's task 28 on sustainable solar housing.

Very briefly, what are the characteristics of solar? First of all, it's very environmental. It's considered the best environmental technology by some people. It's very modular. It can be very small. We have a small solar energy system in the corner. We sell these all over the world. It's a self-contained solar energy system you could take with you up to your cottage, or we can provide for a complete house. You could do an entire city, put solar anywhere. That's one of the key characteristics. Also it can be very discreet. At BCIT they have solar windows. They look like regular tinted windows but they are actually generating electricity. We're putting them into the building skin. In Europe they're replacing granite in high-end buildings. With solar panels it's actually less expensive than the granite, and you don't get a lot of electricity out of granite. The technology is extremely robust. It's the most robust technology there is for generating electricity and roof maintenance. Part of the reason for that is that it was originally developed for outer space. It is also located at the point of use and can be integrated into the building, as I showed in the picture of my house. The solar panels are the roof on my house. It also keeps the rain and the snow out.

The solar electricity can be connected up to the grid or it can be used for off-grid applications. When it's connected to the grid it acts like a negative load. Think of it like a dryer, but it doesn't consume electricity; it generates electricity, so to the house it looks like a negative load. It is as easy to hook up as it is to hook up a dryer.

One of the characteristics is that you are prepaying for 50 or 100 years' worth of energy up front, so once you pay for it, you don't have an ongoing investment. With most conventional energy you pay a little bit for the furnace and then you keep on paying, and that's the

difference. It's also in phase with peak demand. When we see the really hot days and it's in the paper, that's when we're generating the most solar electricity. One of the key attributes is that we typically generate electricity when the prices are highest. For example, we have some data that in Alberta last year the average price of electricity was about 10 cents a kilowatt hour, but the solar-rated value of electricity generated feeding back into the grid was twice that. Also, the solar electricity adds capacity to the grid. What's happening in a lot of major metropolitan areas in the United States is that they're actually adding solar at the point of use. That's the only way they can add capacity, because they can't run bigger wires to the office buildings.

In summary on solar, one of the really key benefits is that it's the best environmental technology: we're allowing consumers to harvest free energy from the sun.

Shell Solar—if you go to the Web site there's a big ad on Shell. By the way, BP Solar has a big ad in here too.

I tried to figure out how we can explain how much energy we get from the sun. If you take all of the fossil fuels we have consumed in the history of mankind and then take all the reserves of fossil fuels that we know about, we get that same amount of energy from the sun in 20 days. If we can just harvest that energy, it's a no-brainer. That is one of the key things about solar.

We also like to take credit for wind because solar causes wind energy. We're very pro-wind, but that's just another form of solar. It also improves the robustness of supply. We're seeing this at first hand in California: by adding solar, it's adding capacity. It's also extremely easy to deploy. We can literally deploy solar energy on a house in one day. In California they have crews go out and do two houses a day, and those installations supply virtually all the energy for those houses.

Some international examples: please take a look at the materials, because solar is happening in a big way. The Japan market is probably the most exciting. In 1993 they did the first 10 homes in Japan. Last year they did 20,000. Experts are saying we're about a year away from a self-sustaining market. They had a large government subsidy that they've reduced every year. Next year the subsidy goes away. Right now they have a small subsidy. We think we're about a year away from a mainstream market in Japan.

Germany had another exciting stimulus program where they actually paid a premium for solar electricity on a kilowatt hour. That stimulated that market.

In the United States, California had a 50% buy-down program. There's information in that package that tells you more about it. The on-grid, grid-tied systems are where the highest growth is.

Opportunities for Ontario—economic: we're going to create jobs. I know a little bit about creating jobs. My prior background was in venture capital. I created several hundred jobs in BC. I decided to return to Ontario and do the same here. What we know from wind and solar and other renewable technologies is that we typically, for a dollar input, produce five times as many jobs as com-



pared to coal or nuclear. It's also going to create exports and reduce imports.

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It's also an environmental technology. We estimate that we are going to reduce greenhouse gas emissions by 20 tonnes a year in my home, on my house. Also, in terms of reliability, there are concerns about deregulation in Ontario based upon some of the poor planning in California, and solar energy will help improve the robustness of the grid.

Recommendations: we need to formalize simple grid connection in the regulations for small renewable generation. We have a very progressive utility in Waterloo North Hydro that has allowed us to do this for their education. It's very easy to do this. This has been done in tens of thousands of homes on a worldwide basis. We just need to get with the program and implement simple regulations to remove the barriers.

There is net metering legislation in 35 states today and in several countries—Japan, Germany, most of Europe, the United States—and you can get more information if you go that Web site. Because solar is a premium value commodity, we need to provide an optional peak and off-peak rate so you can get the true value of solar that is available to the homeowners.

We need to remove potential utility opposition. We have a very progressive utility in Waterloo. Other utilities are not as progressive. We need to complete deregulation. Solar works in both areas. We don't need deregulation, but just to make a decision and complete it. We need to train electrical safety inspectors. We have professional engineers in our company. We've sat down with electrical inspection. They passed it; we explained it. All that has been taken care of.

The second part of our recommendations is to provide incentives. I'm not here to say to do this one or that one, but here are a number of incentives that will help to accelerate local industry. That could be interest deductibility on solar products or even on the whole home. If you produce a low-energy home or a no-energy home, can you deduct the interest costs on that? In BC there's no PST today for solar energy products. Let's do that at least in Ontario, and you talk to the federal government about the GST thing.

Buy-down programs similar to what they did in California; high purchase rates similar what they did in Germany. Flow-through shares could be a very practical way to stimulate investment in small companies like ours. We've done that in the oil and gas and mining industry. Let's mine the sky. Other shareholder investment incentives similar to what they've done with labour-sponsored funds; and expand university research. I know a number of really good professors. There's a lot of gold in universities. We have strong relationships with several of the universities.

In summary, solar is going to become a mainstream technology. It's happening now, with or without Ontario. But what we have is an opportunity to be the Canadian leader and leverage off our historical manufacturing and

export strengths. With this technology, one of the fundamental shifts is that we're going to go away from extracting things out of the ground to manufacturing equipment to harvest free energy from the sun and the wind. Or we can just ignore it and continue to import the technology. We import most of the products; we're doing some manufacturing. We also have an opportunity to export: 75% of our sales today are exported into the United States, mostly into California. I like California. Utilities are going to have a more robust and lower-cost grid. One of the reasons why we're able to sell net metering with Waterloo North Hydro is because I showed them that my sending electricity back into the grid would actually improve their profits.

We have an environmental issue today. Solar is the best environmental technology. This is how our planet works. If we didn't have the sun, we wouldn't have our lives. We've done some proprietary market research with the executive program at Wilfrid Laurier, plus stuff out of the United States. All things being the same, consumers' number one choice is solar. We did a focus group with these MBA students. They asked people, saw the public, "List all the forms of energy." They listed all the forms of energy. "Tell us what are the pros and cons of all those forms of energy." Solar was the only technology that did not have an inherent negative problem with the technology. So I think it's important to listen to the consumers, listen to the marketplace, listen to constituents and give them what they want.

The last slide has our coordinates. I won't put that up. If you need to contact us, we're going to be updating our Web site shortly on the ARISE side. On our SolarSense.com, which is our retail Internet store, you can shop for some solar products. We take Visa and MasterCard.

**The Chair:** Thank you very much for your presentation. We have about a minute left for each of the caucuses.

**Mr Gilchrist:** I guess cost is the issue. Very briefly, give us an idea of the installation costs. We just heard from a wind generator what the cost would be to have one house converted. What would it cost to put solar in?

**Mr MacLellan:** Unfortunately, it's a very broad answer. Michael, who is our chief financial officer, can maybe give a slightly more concise answer than I would.

**Mr Michael Ben:** How much solar do you want? If you have a roof on a home, it's just completely up to the economics. A one-kilowatt system is going to be \$10,000 to \$12,000. That home was five kilowatts of photovoltaics, and that would be about \$50,000. You typically wouldn't go much beyond that five kilowatts. That's the largest in Canada to this date. There are a few homes in the States with over 10 kilowatts, but not very many.

**Mr Gilchrist:** Does that include the battery storage component as well?

**Mr Ben:** The batteries are not an expensive component of it. The key thing there is that he has no battery. His battery is Ontario Hydro. He just sends his excess back. It's an on-grid system. What he is going to install

for the security, a big selling feature, is that you can have it so that you have a battery bank where you save it and then the excess goes off to the grid. That's just because we've tested our internal inverter, which doesn't have that capability, which it will shortly.

**Mrs Bountrogianni:** This is heartening for me, coming from a solar country originally. But if you ask most citizens on the street about solar energy, they would say that it wouldn't be worth it in Canada because of our climate. Could you disprove that, that there's enough sun and this would be worth it?

**Mr MacLellan:** Yes. For example, there's a home in Maine, which is actually slightly north of where I live. We get more solar energy here; we get more solar energy than in a lot of places in Europe. So it works, actually, quite well. When I've talked to people on the street, we've had very positive response from neighbours, and we've had a number of television interviews and newspaper articles. What we're seeing is that there is a strong interest in solar. All you have to do is come over to our house. You're all welcome. In fact, come for a swim. People touch the pipes, and they're hot. They see the electrical meter running backwards, and it works. A friend of mine who is a world expert in solar—Time magazine referred to him as one of the heroes of the planet—likes to close his presentations by saying, "If it exists, it must be possible." It exists here in Ontario. It must be possible.

**The Chair:** I'd just love to see my meter running backwards.

**Ms Churley:** You gave a series of recommendations, but what would be the key recommendation for this committee to bring back to the Legislature to get this industry off the ground—I suppose you'd say it is off the ground, but to make it more popular and people more aware of it and willing to try it?

**Mr MacLellan:** I think the most important thing right now is to remove the lack of net metering rules in Ontario. We're really behind. Net metering first happened in the early 1980s in Massachusetts. That's the number one thing that I'd ask for.

I think the second thing would be to find some way to stimulate the industry, just level the playing field. You've stimulated the nuclear industry, as mentioned earlier. Hibernia got a \$1-billion grant. Just find some way to level the playing field and let private enterprise create the jobs. I know how to create jobs; I've done it before. Just make it easy for me.

**The Chair:** Thank you very much for an intriguing presentation. You may have to be on recall too, from the enthusiasm here. Thanks very much for coming out.

1840

#### VESTAS CANADIAN WIND TECHNOLOGY INC

**The Chair:** Our next presenter is Philipp Andres, sales director for Vestas Canadian Wind Technology.

**Mr Philipp Andres:** It will take me a minute here to set up.

**The Chair:** If anyone in the audience has some special needs for a presentation, just speak to Tonia Grannum, who is over here in the grey suit, and she'll help you out.

**Mr Andres:** I don't need a mike.

**The Chair:** You need a mike for Hansard because it's all being recorded. Sorry about that. We can hear you, but there's an ulterior motive for having the mike on. You can read all about it in Hansard later. All set to go?

**Mr Andres:** We'll just let it warm up here for a second and then, yes. Can people see this alright?

**The Chair:** Just fine.

**Mr Andres:** My name is Philipp Andres. I'm sales director for Vestas American Wind Technology. I have been in the wind energy business for the past 11 years. I started out in 1992, worked for two manufacturers, one a German company, and established a rotor blade manufacturing facility near London, Ontario, which is still running and operating today. The company was later bought out, and then I switched to a Danish manufacturer—Vestas is in Denmark—to their North American subsidiary, Vestas American Wind Technology. Just recently we formed a Canadian subsidiary called Vestas Canadian Wind Technology, and I'm also the sales director for that company—for both companies, actually.

My office is up in Kincardine, the energy capital of Ontario, near the Bruce nuclear power development. I put up a wind generator right next to the visitors' centre back in 1995. That was done in collaboration with Ontario Hydro and Natural Resources Canada at the time. That generator has been running very successfully for six years.

I'm going to structure the presentation in three segments. First, I'll give you a quick overview of wind energy worldwide, then how Canada is faring, and Ontario specifically in the context, and then the required market rules for renewables in Ontario in order for our industry to have a fair chance in a deregulated market.

This shows you just an overview of what has been installed worldwide to date. It's more than 18,000 megawatts, and the lion's share of that has been installed in Europe, more than 13,000 megawatts in Europe, of which almost 4,000 were installed in the year 2000.

The next largest share is in the Americas, with almost 3,000 megawatts installed by the end of 2000. In the year 2000, 180 megawatts were installed, of which our company installed about 50%.

In terms of wind power development, we are no longer a fringe industry worldwide. We are a mainstream business and we've been growing at compound rates of between 30% and 40% annually. As you can see, this is the graph showing from 1990 up to 2000. We now have annual growth of more than 4,000 megawatts and that is projected to climb to over 10,000 megawatts for the entire industry by the year 2005, over the next four years. You can also see how it is split up again in a graph form.



You will get all of this. I will put it on a CD ROM, saving some paper. I have made one copy of it. There are more copies being done right now. I had some trouble with the photocopier at my office, so I apologize for that.

This shows you the value in US dollars, and that is actually in millions of dollars. They should put a comma in there. That slide was done in Europe. By the year 2005, the market is expected to grow to over \$32 billion a year. In our company alone right now, for 2001, we are anticipating that we will have a turnover of about C\$1.8 billion worldwide. Again, this is cumulative wind power capacity, up to 140,000 megawatts by 2010, which is very significant growth. Actually, 1999 was the first year when the wind energy capacity installed for the year exceeded the nuclear energy capacity that was installed the same year. That means on an annual basis.

This shows you a little bit again how it's split up between countries. We are looking now at a fairly substantial amount of energy being produced from wind energy, more than 37,000 terawatt hours per year in 2001.

I'm going to quickly slide through this. I just thought those slides would be helpful for you afterwards to put our industry into context. I'm not going to elaborate on all of them.

Our technology has also had a lot to do with why wind power has taken off. We are now very cost-competitive in good, windy areas, and this shows you the development of the price of energy on a per-kilowatt-hour basis in US dollars. It was at 16 cents a kilowatt hour in 1980 and it's now about two and a half cents US in the United States at good, windy locations. Mind you, that still has some tax incentives associated with it, and the rates we are seeing in power purchase agreements are reflecting that somewhat as well.

That also shows you, obviously, that the higher the average wind speed is on a site, the lower the cost. If you have an average of, let's say, six metres per second, you would find that the cost would be about five and a half cents US per kilowatt hour. It keeps on going down as your wind speeds increase, so location is very important.

What does the future hold? We think we can reduce our cost of energy by another 10% to 15% over the next three years. Actually, over the last three years it was 10% to 15% and we expect another 10% over the next two years. As I indicated before, currently PPAs are being signed in the United States, in the Pacific northwest and in Texas for two and a half cents a kilowatt hour or less.

Also, we feel that the emission reduction credit market will further evolve, both on the domestic and international fronts, and will be driven both by local pollution concerns and by international greenhouse concerns for CO<sub>2</sub> and other greenhouse gases.

Wind energy will form a much larger part of energy supply in the future and, once the switch has been made to a hydrogen economy, will also then become a major source of energy for the transportation sector.

1850

How do other countries support wind energy? As an example, Denmark currently produces 13% of its elec-

tricity demand from wind energy and that is scheduled to go up to 50% by the year 2030. They will install more than 4,000 megawatts of new generation capacity offshore. It's a country with a population of only five million or six million people, so we could compare Denmark to Ontario. That puts it into context a little bit.

We have many more incentives in the United States than we currently have in Canada. Ontario is not alone in that it doesn't have any incentives; the rest of Canada doesn't have any either. We have a 1.7-cents-per-kilowatt-hour production tax credit in the United States which you can use against taxes payable, so primarily the investors in the wind business are large utilities and their unregulated utility subsidiaries. They have really been driving the price down as well by purchasing very large quantities. As an example, we have one customer out of Florida which has purchased almost 900 machines from us for installation this year alone.

You can go through this at your leisure. That shows you what incentives are in place in different countries. I'm not going to elaborate much more on that because I know I only have a limited amount of time to talk and I want to get to some of the recommendations afterwards as well.

The future for wind power in Canada: Canada has an excellent wind resource. I would say that within continental North America we probably have the best wind resource. That, coupled with a large consumer base and the land available to place these wind farms, I would say we are really destined to become the largest market for wind energy equipment in the world over the next five years.

If we were to follow the lead of what CanWEA is proposing right now, 10,000 megawatts by 2010, it would result in very substantial investment in Canada. I wasn't here for Jim's presentation; have you concentrated on that quite a bit? You probably have heard about this already. If we as a company have a local market where we can install 100 to 150 megawatts a year, then we will start establishing local manufacturing. We do a full technology transfer at that point in time. That's what we're in the process of doing right now in the United States. It will likely be in the Pacific northwest because that's where a very substantial market is developing. As an example, the federal utility BPA has announced an RFP for a thousand megawatts all on their own, and there are many different RFPs coming out in the Pacific northwest; also down in Texas.

Texas has an RPS—that's a renewable portfolio standard—in place of 2,000 megawatts. In terms of the implementation of that, the 2,000 megawatts was supposed to be installed by 2009, but it's already way ahead of schedule and almost half of that capacity will be installed in the first year of its existence. In reality, the premiums which consumers would have to pay, or the rate impact of that renewable portfolio standard, is actually negligible because the price of natural gas has gone up, so it might actually decrease the system's overall marginal costs by implementing an RPS.

What is the potential in Ontario itself? Ontario has a landscape very comparable to northern Germany, northern Europe; relatively flat in southwestern Ontario and eastern Ontario. Some 3,000 to 4,000 megawatts is not a big deal to install. The turbines are getting larger; we have taller hub height and larger technology. Our company just installed in Pickering a wind generator of 1.8 megawatts in size on a 78-metre-hub-height tower. I would encourage anybody who travels on the 401 to drive past it and take a look. The inauguration of that machine is going to be on Wednesday, tomorrow. My understanding is that Elizabeth Witmer and some other ministers are going to be present at the site.

We also have a large customer base in Ontario. We have a customer base which is, in my belief at least, educated in environmental issues. I think the consumer wants to have the choice of being able to go out there and buy green energy, and it is very important that we are not erecting new market barriers but that we are taking market barriers down and making sure that we are operating on a level playing field and also that actually renewables should be the preferred choice of generation because of the positive environmental attributes we have at the same time.

As I indicated in my lead-in, there's already plenty of practical experience here in Ontario. Modern technology has been running here for more than six years. There definitely is a wind resource here. Wind resource assessments have been done since 1992, and my colleague Jim Salmon has done some of the studies for my company as far back as 1992. So the wind resource is well documented and we feel that that is not really the problem, that there wouldn't be any wind. The primary issue here was that there was really no policy support in place which would have given us a level playing field versus nuclear and some of the other generation technologies which are more mainstream.

If we were to install 1,000 megawatts of wind energy capacity, that is with a 1.8-megawatt machine and only 556 turbines. That's not all that much. When I put that into context, we have 70,000 transmission towers in this province, and the population wouldn't think that we are totally cluttered with transmission towers. So 500 or 600 machines would disappear in the landscape, and that's 1,000 megawatts. So to go to a target of 3,000 or 4,000 megawatts could give us a very substantial boost in terms of dealing with nitrogen oxides and sulphur dioxides. As an example, the effect of 1,000 megawatts of installed capacity, with very average capacity factors calculated in, conservatively we would be looking at more than nine kilotons of nitrogen oxides and more than 32 kilotons of sulphur dioxide which would be avoided with that type of installation. So we can make a substantial impact. If you go up to 3,000 or 4,000 megawatts, the impact is much more dramatic.

I'm going to flip through this very quickly and get to the recommendations. That just shows you a little bit about our company. That will also be on the slides. We now have an overall annual production capacity between

the group of companies of 4,300 megawatts. That is, in total, more than the installed capacity right now at Pickering and more than what it is at Darlington. This is on an annual basis, so this is very substantial manufacturing capacity and we're increasing that by about 30% per year every year.

That just shows you a few pictures, that this is a high-tech industry. That shows you the installation of one of the wind turbines. This is actually a project down in New York state, southeast of Buffalo. If it works down there, it should definitely work up here. It's a project with 10 660-kilowatt turbines. That's the finished project, and there are another six turbines farther to the north.

This is the turbine we just installed in Pickering. You can see the nuclear station beside it. This is a pretty large machine. The rotor diameter on this turbine is 80 metres. Here's another view of it. This shows the development over time and that is indicative of the industry as a whole. We started out small, 55-kilowatt equipment, gained our experience, learned from our mistakes, and progressively have gone up to larger turbines. Larger turbines are utilizing the space more efficiently; you need fewer of them. When you're looking at a visual impact, you cannot distinguish from a distance whether it's a large turbine or a smaller turbine; you can just see the number of turbines which are installed. So larger turbines also have a positive effect from a visual perspective, other than just increasing the amount of energy you can harvest from a specific location.

What are the options we have available in Ontario? We believe that a comprehensive policy approach is required, and when I'm talking here I'm also putting on my IPPSO hat a little bit. I'm the chair of the environment committee for IPPSO and I'm on the board of directors as well, so I'll refer to it. Some of it is IPPSO's position and some of it is our own company position. But it is also IPPSO's position that we should have a comprehensive policy approach to make sure that renewables are not forgotten in the deregulated marketplace.

**1900**

**The Chair:** You have about two minutes left.

**Mr Andres:** OK. I'm going to hustle through it.

The available options include a renewable portfolio standard. The emission cap and trade system that has been proposed: we just, today or yesterday, have submitted our comments from IPPSO on that. We were very happy to see that the ministry has taken at least part of our recommendations to implement a set-aside for renewables and energy conservation on the  $\text{NO}_x$  and  $\text{SO}_2$ , but the percentages were wrong, and we need to definitely get those increased. My recommendations are in there.

What is the rationale for policy intervention? The spot market, which invariably is setting the price in a deregulated marketplace, favours low capital cost-high variable cost generation options, because that way in pretty well all markets the fuel costs are passed directly through to the spot market—that's why you have all the variations in it—so that's where the market gravitates to. It's pri-



marily natural gas in terms of new energy capacity or production capacity being installed. That is not all bad, I'm not saying that it is necessarily bad, but we need more options than just natural gas if we want to have a vibrant electricity market in Ontario, so we want to make sure the high capital cost, upfront capital cost generation options, but which have a very low variable cost, are not forgotten in the process. They're very hard to finance unless you have long-term power purchase agreements in place, and that is—what California found out—if you are at 58% natural gas for your generation capacity, you're going to be suffering from price volatility if the gas is in high demand. We want to make sure that we are maintaining our independence by having a variation of generation options available. That's why renewables require a little bit of a push, because they have a high upfront capital cost, but the operating costs are low.

Obviously, one other thing is that polluting the environment when you are producing electricity is not a right. It should be the principle of polluter-pay in the process, and it has to be valued somehow. So if I go on the system with clean energy, I should get some benefit from the fact that I'm avoiding pollution rather than producing it.

The renewable portfolio standard is the single best mechanism to achieve a meaningful amount of new renewables to come on the system after deregulation has taken place and the market opens up. It has no, or a negligible, effect on consumer prices worked in conjunction with other policy measures such as emission cap and trade and tax credits, and guarantees the resource diversification on fuel price risk mitigation and allows for accelerated reduction in emissions, as I've shown to you in that other graph which showed the emissions avoided.

**The Chair:** You're well over the 20 minutes. So wind it up, please.

**Mr Andres:** OK. An RPS document drafted for Ontario will be provided to the ministry and also to the select committee by IPPSO and the wind power task force prior to the end of September this year.

The only other thing I wanted to show you here in terms of the emission cap and trade recommendations: right now in there it's one kiloton which has been proposed as a set-aside for renewables, both for NO<sub>x</sub> and SO<sub>2</sub>, and that's including energy conservation. We're proposing at least 5%, and that will be 1.8 kilotons for NO<sub>x</sub> and 7.9 kilotons SO<sub>2</sub> in 2002, and for that then to be ratcheted up.

**The Chair:** Thank you very much. I think we're going to have to move on. It's obvious in some of the areas of technology we're going to have to have a recall and get further into the details.

**Mr Andres:** All right. What I also did for you was to give you a copy of a summary of the state incentives in the United States. It shows you for each and every state what kinds of incentives they have in place for wind energy.

**The Chair:** Thank you.

## ACROLAB LTD

**The Chair:** Our next presenter, Acrolab Ltd, Marvin Shaw, research and development; and Joseph Ouellette, president. Joseph, you just may find a long-lost relative here at the table.

**Mr Joseph Ouellette:** Is there a Ouellette here?

**Mr Jerry Ouellette:** Bonjour, monsieur. Ça va ?

**Mr Joseph Ouellette:** Can you hear me?

**The Chair:** You will need the mike for Hansard purposes. We hear you but that doesn't mean they will hear it for Hansard purposes. You'll be able to read about yourself in Hansard later.

**Mr Joseph Ouellette:** That's good.

While we're setting up, I'll give you a little use of the time here.

Acrolab is a group of companies that operates worldwide and has manufacturing plants both in Canada and Poland. We manufacture heat transfer equipment specifically for the industrial and aerospace industries. Our customers include NASA—we have launched equipment on the space shuttle—General Motors, DaimlerChrysler, Ford Motor, Hewlett-Packard, Sikorski Aircraft, Boeing.

We do a lot of work in the industrial arena with respect to transferring energy rapidly. The product we use to do that is referred to by the trade name Isobar. It is a superthermal conductor. In an environment like this it's extremely difficult to demonstrate it. It is a relatively demonstrable piece of technology but we would need some apparatus to do that, so we didn't bring it with us. Time is limited and we respect that. For that reason, I'm going to ask you to take on faith some of the information I'm going to give you tonight.

The product transfers energy approximately 20,000 times the speed of a solid copper bar of the same geometry as the device that we're going to be discussing. It is not only superthermal, it is super-distributive. By that I mean that energy is transferred immediately from one end of the device to the other, but simultaneously the device produces an isothermal or exact uniformity of energy from end to end.

Agrilab is a company within the Acrolab group. Agrilab was developed to take advantage of a circumstance and an application that had been about three years in research and development, and that was the development of alternative fuel sources and heat transfer systems for the agricultural and agribusiness in Ontario, Canada and North America.

Bear with us just a moment. We'll get this show-and-tell on the road.

**The Chair:** Maybe with new technology the problems we have—it used to be just a carousel of slides and you dropped them in.

**Mr Joseph Ouellette:** I used to give these with carousels of slides years ago. Now we've gotten more into computers and we're slowing down.

Agrilab, in the Acrolab group of companies, is located in Windsor, Ontario. As I said earlier, we also have a plant in a city in Poland known as Lublin. We supply

both the eastern and western European markets with our products out of Lublin, Poland.

#### 1910

Due to our location in Windsor, Ontario, we understand quite well the frustrations and concerns of the greenhouse farmer who has suffered greatly at the hands of oscillating fossil fuel prices over the last winter, although this year there seems to be some relief. The latest publication is that fossil fuel prices and natural gas prices have dropped an astounding 75%. I'm not quite sure what the dynamic is that causes that to happen, but I'm quite surprised. Even though the 75% reduction is in place, the curve with respect to the cost of fossil fuels, and natural gas in particular, is always up. We will never pay less in the long term for the energy we're getting.

We're on.

Agrilab develops, designs, manufactures and markets heat transfer solutions to the rural and agribusiness customer. It is part of the group of Acrolab companies. Acrolab has approximately six corporations in the group. We were established in 1948 and we are a world leader in heat transfer technology industrially. We do business in 27 different countries.

We're going to talk about the regional justification for Agrilab and for alternative fuels within the context of the greenhouse industry in southwestern Ontario, and we'll make specific reference to Essex county, our home.

Ontario produces more than half the greenhouse vegetables produced in Canada, with an annual farm gate value of \$275 million. Essex county has 1,000 acres of greenhouses, with an estimated property value in excess of \$300 million.

Canada's greenhouse vegetable industry produces 17,000 Canadian jobs and is a \$3-billion industry in economic activity, with a \$1-billion investment in leading-edge agricultural technology—significant numbers.

Skyrocketing fossil fuel costs: the cost of heating a greenhouse structure has increased from 200% to 300% in the recent past. I refer specifically to last winter. For the economic survival of the industry, alternatives to natural gas energy must be found.

Agrilab's alternative fuel heating system: let me give you some sense of this. Natural gas is a fossil fuel. Agrilab deals with fuels before they become fossilized. Agrilab deals with the use of biomass materials that have yet to decompose, solidify and become coal, oil and natural gas. Agrilab uses biomass in a unique way. The typical biomass solution is to burn it. Wood chips, sawdust, ground-up pellets, tree waste, vegetable waste and plant waste are tossed into an incinerator and burned at high temperatures in order to acquire thermal energy or, as a by-product, through additional processing, electrical energy.

What Agrilab does is take advantage of the energy associated with the decomposition of biomass materials. Energy lost through rapid energy conversion of biomass materials is in the range of 60% to 80%—free gases gone, unable to be used for anything of any value. Biomass produces, in its decomposition cycle, energy that

can be captured at the rate of 90% to 95%. Agrilab's technology is, first of all, to potentiate the biomass decomposition cycle and, secondly, to extract the energy associated with that process and move it into the greenhouse, the agricultural outbuilding, the farmer's home and buildings that are in a generally rural environment at this point in time.

The methodology: I spoke earlier about the idea that we're dealing with energy due to the decomposition of materials. We also use the Isobar superthermal conductor in order to remove the energy from the biomass during its decomposition cycle so that we can extract that energy without dealing with the natural process that occurs on the forest floor, but it has within it some concerns about various other gas-generating processes such as minor amounts of methane and ammonia and things of that nature.

We are able to move the energy in a sterile environment to the point where energy produced and decomposing biomass can be directed immediately into a sterile operating theatre without any fear of contamination.

Heat generation: the average decomposition period for a biomass is approximately 42 days. That is a growth-and-decay cycle that begins at room temperature and climbs to approximately 140 degrees Fahrenheit, sustains itself at approximately 140 degrees Fahrenheit for a period of two to three weeks and then decays down to a temperature of approximately 90 to 100 degrees Fahrenheit. You'll excuse the use of Fahrenheit, but, frankly, it has a larger number of intergradations within the temperature range we work in so we elect to use Fahrenheit as opposed to centigrade. The idea is that a natural decomposition period of 42 days generates energy in the range of 140 degrees Fahrenheit for approximately a two-to-three-week period during that decomposition cycle.

Agrilab has extended this decomposition period to 150 days, while sustaining a temperature range of 135 to 140 degrees Fahrenheit. What is extremely important here is that temperature can be sustained in a cubic metre of biomass material while energy is being extracted from it, making it possible to heat a greenhouse complex for an entire winter from the decomposition of one biomass pile.

Maximizing biomass performance: as I said, nature does a marvelous job of decomposing materials that are plant waste. It happens on the forest floor; it happens in your backyard. Your grass clippings decompose; energy is generated. If you bundle up all your grass clippings, put them in a black plastic garbage bag, put it out on the lawn to be taken away and put your hand back into the garbage bag the next day, you'll find it's 135 to 140 degrees Fahrenheit within the bag. Nature does a lovely job of it. We know that by taking predictable biomass materials, blending them with natural cultures—essentially catalysts—ensuring that there are appropriate and controlled amounts of oxygen and water, that we can sustain the energy that is produced naturally over an extended period of time while sustaining a temperature



range, again, of 135 to 140 degrees Fahrenheit while a demand is being placed on the system.

As I mentioned, biomass can be developed in specific materials. An example of that: sweet corn silage, which is a cattle feed at the present time and is available in range of \$10 a tonne, can be purchased, brought in, have a catalyst provided to it—which is really nothing other than a natural culture of either poultry, swine, horse or cattle manure, and frankly the proportions of that are very small—and by blending in those catalysts we can generate powerful amounts of energy over long sustained periods of time with no odour control necessary and with no methane or ammonia generation of any significant account.

## 1920

This is a strange-looking greenhouse. In fact, it is a research apparatus. It will never see the light of day as a commercial greenhouse, but it is an example of how we developed the data necessary for us to commercialize this technology. This is in fact two concrete, poured-in-place pits approximately 18 feet long, eight feet wide and six feet deep. A greenhouse structure exists over one and a biomass pit exists in the other. Approximately six tonnes of sweet corn silage and 400 pounds of horse manure are in place in this pit. This pit, by the way, exists less than 300 metres from a high-density housing complex. Nobody even knows it is functional. There is no odour. You cannot detect anything happening in this construction, nothing whatsoever.

This device has been generating, through its biomass decomposition, 140 degrees Fahrenheit for 145 days. It has been transferring energy from its biomass into the greenhouse through a plenum at the base of the pit so that the greenhouse has sustained a minimum of 65 degrees Fahrenheit, at least in environments that have been in the range of 30 degrees to 28 degrees Fahrenheit during the evenings.

There is no electrical connection to that greenhouse. There is no need for any electrical power within this structure. What you see here is the biomass pit before it had been loaded with biomass and these copper bars are in fact superthermal conductors that we refer to as isobars. They were in place before a top-off of six inches of highly conductive concrete was poured in place. So the base of the biomass pit has imbedded in it 20 of these superthermal conductors that transfer the energy generated by the biomass across a party wall and into the greenhouse proper. This is six tonnes of sweet corn silage blended with approximately 400 pounds of horse manure, as you can see, full right up to the top. By the time we're finished, we're going to reduce that in mass 10 to 1 and we're going to produce potting soil.

There is no energy loss other than the energy transferred into the greenhouse itself. The efficiency is in the range of 85% to 90%. There is no electrical connection to this system whatsoever. There are no greenhouse gases produced by this system. What we have done in this instance is taken a marginal crop and converted it into

five months of usable fuel that will ultimately generate a saleable product in humus and potting soil.

Process integration and distribution of the heat energy: in this particular research apparatus that we were discussing earlier, we transferred the energy directly into air at the bottom of the greenhouse pit. You can see here the other side—this is the party wall between the two pits. These are the evaporator or condenser sections of the superthermal conductors that we're using here—the isobars. They're located at the bottom of the plenum, approximately 18 inches above the floor of the plenum and before a whole matrix of concrete block has been placed between them so that we can ultimately create a floor five feet above this structure or array of condensers, so that air has free passage through the plenum.

During the day, the temperature in the greenhouse, due to the sun, the passive solar effect, is in excess of the temperature in the plenum. In the evening, when the solar energy is no longer available, the greenhouse rapidly becomes somewhat cooler than the plenum itself. At that point in time, natural convection occurs and the warm air at the bottom of the plenum rises and presents itself to the greenhouse and the plants, where it cools and, becoming more dense, settles down back into the plenum, where it is reheated by these condenser sections and a natural convection cycle maintains temperature at 60 to 65, 70 degrees Fahrenheit in a circumstance where a 30-degree-Fahrenheit outside temperature exists.

**The Chair:** Unfortunately, you're over time, but I'll give you another couple of minutes to tidy up, wind up there.

**Mr Joseph Ouellette:** Environmentally positive: this system uses nothing but natural materials. Natural decomposition process: there is nothing irregular or unusual or forced about this process. We optimize the natural process merely by ensuring that the appropriate amounts of moisture, decomposition material and oxygen are present—no fossil-fuel emissions whatsoever—and the material that we use is reduced in size by 10 times its volume and we reuse waste material.

An interesting point: a 10-acre hydroponic greenhouse that produces tomatoes 50 weeks a year generates an astounding 25,000 pounds of plant waste every week. We take that 25,000 pounds, allow the farmer to not have to deal with tipping fees in a landfill, redirect that landfill material into a system that generates heat for his process by circulating hot water through a system as opposed to using air—I won't go into the technology; I think it's evident within the brochure—and at the same time give him a saleable product in potting soil that he either puts upon the other acreage that he has within his farm or sells on a commercial basis. There's a \$500,000 annual cost to heat 10 acres. Agrilab's heating system can reduce dependency on these fossil fuels by 50% to 70% and provide a return on investment in the range of two to three growing seasons.

**The Chair:** If you could just wind up.

**Mr Joseph Ouellette:** That's it. I'm not going to give you any more. It's all in the brochure. Should you require more information, we're at your disposal any time.

**The Chair:** I did stretch the time because it's such an intriguing presentation and very different from anything we've received so far. Thank you ever so kindly for coming—excellent information.

1930

#### AUTOMATION TOOLING SYSTEMS INC

**The Chair:** Our next presenter is ATS, Automation Tooling Systems, Milfred Hammerbacher, vice-president of solar division.

**Mr Milfred Hammerbacher:** I saw earlier how we kind of struggle with this transition, so I had this thing lit up and ready to plug in, and as I set it on here, what happens? The screen goes black. So we'll see what happens here. And the screen is black there too.

**The Chair:** Maybe it's waiting for some solar energy.

**Mr Hammerbacher:** I think that's what it is.

You have the presentation in front of you so I'll just get my copy and we'll go through it, and if this ever comes on, fine.

**The Chair:** We can certainly follow along with the slides.

**Mr Hammerbacher:** Yes. My name is Milfred Hammerbacher. I'm with ATS. I'll just give you a brief background of myself before we start. I have actually been in the solar industry for a little over 14 years. I started at Texas Instruments on a solar program there. In the last four and a half years I've been working with ATS, Automation Tooling Systems, managing various segments of their solar businesses.

This evening I'll just touch briefly on the background of ATS and then I'd like to hopefully answer a few questions: why should we be interested in solar as part of a sustainable energy plan and how can the Ontario government participate in making this a successful industry for Ontario?

Following along here, ATS is headquartered in Cambridge, Ontario. We have a little more than 3,700 employees worldwide right now. We are traded on the Toronto Stock Exchange. The company's principle business is automation. We build turnkey automated manufacturing lines for a lot of Fortune 500 companies in a very diverse market: automotive, pharmaceutical, semiconductor, consumer products and solar.

ATS also has a pretty good global presence for a company its size. We have companies in the US, Europe and Asia, but by far the largest segment of our business is in Ontario.

The solar activities of ATS really started back in 1992 when ATS was the lead equipment integrator for Texas Instruments on a research project that Texas Instruments was developing at that time. In 1997, ATS purchased Photowatt International, which is a French solar cell manufacturing company, and in 1998 we had the opportunity to buy the Spherical Solar technology that Texas Instruments had developed. Since 1997, ATS has invested over US\$60 million in solar activities. It's still a relatively small segment of our business but it's some-

thing that the company feels very strongly about and is continuing to invest serious dollars in.

Photowatt International, as I said, is a French-based company based in Bourgoin-Jallieu, France. It has been around for over 20 years. It is one of the first solar companies in existence, actually. Today it's the seventh largest manufacturer in the world. When we purchased the company they were producing about two megawatts per year of solar panels and this year we'll produce about 18 megawatts. So we've gone through a very rapid expansion of our business in France and right now we're in the decision process of bringing that over the ocean and putting in a manufacturing facility here, hopefully in Canada and hopefully in Ontario.

The customer base for Photowatt is also global. We have a large clientele in Germany. The US is a big market for us and a lot of the francophone countries in Africa and the Caribbean are also major customers of Photowatt today.

We brought with us a panel. I know my colleague Ian MacLellan showed you a panel earlier. This is one of the products we manufacture in France today. This would produce about 50 watts of electricity.

We are also working toward the future and we feel like Spherical Solar technology is the technology that can really make a breakthrough in this industry. I'm going to have Nathalie pass around some samples. It's always easier to feel than to talk about. Basically this is a technology composed of thousands of tiny silicon spheres. Each sphere is actually a solar cell. Those spheres are bonded into an aluminum foil, and a few other processes, and they are made into a solar cell. The solar cell is flexible; it doesn't break. This was developed in Texas. I have to add that it's bulletproof as well. It's important in Texas that you have a bulletproof product.

Why are we so excited about the technology? Really, the number one reason is the cost. With this technology we feel we can achieve under five cents a kilowatt hour of electricity cost, which puts us in very good competition with a lot of conventional forms of electricity generation. That's been one of the major knocks against solar for so long, that it's too expensive: why should we invest in something when we get something else at a lower cost? We think this is going to solve that problem.

The cost is important, but also flexibility plays a big role in this as well. The material can be flexed. It can be made in any size or shape. We have a prototype of a roof tile. This is a Spanish roof tile. These solar cells can be wrapped over the tile. Architects really like this technology in that they finally have a technology that they can design buildings with, rather than slapping something like this on to a building. There's not a whole lot you can do from an architectural design standpoint.

The flexibility also lends itself to other building material, sidings and that sort of thing, as well as the automotive market. Right now the automotive market is going through some major transitions. Hybrid cars are starting to become popular, and by putting a couple of these panels on the roof of a car that conform with the



curvature of the car, you can have another form of a hybrid vehicle.

Why solar? Why should anyone be interested in solar? I've listed here a few of the attributes. The obvious one is that it's inexhaustible, clean energy. As long as we've got a sun, we have solar energy. That's an important fact as we go to the future.

It's a very reliable technology. There are no moving parts. As I said, Photowatt has been in business for 20 years. We have product that's still in the field in Africa in some hostile environments that's still functioning well. This is a really positive feature for something, especially if you're going to incorporate it into a building that's expected to last for many years to come.

It's also an unobtrusive technology. There are billions of square metres of building surfaces out there today that are basically wasted that we can deploy this technology on and not really negatively impact the environment.

It also helps solve transmission grid problems in that you have a distributed power source; you put the power generation where the power is used. Those two factors, the non-obtrusive part and the fact that it helps solve transmission problems, are very important today. Everyone is aware of the energy crisis that occurred in California and that's still there. There were many factors that created that crisis, but one that may rank high up there is the not-in-my-backyard syndrome. For 10 years the citizens of California refused to allow any power plants to be built in the state, they did not allow any transmission lines to be erected in the state, and here they have a problem where they don't have enough electricity. Here's a real challenge: how do you get electricity to these people? People are making statements. They want a clean environment to live in. They don't want to breathe fumes. They don't want something ugly in their backyard. How do you get electricity to them? We think solar is an outstanding opportunity to solve that problem. Today California is an exploding market for us. We cannot supply enough of this product into that market today.

Then again, with new technologies like the Spheral Solar technology, we also think we will be cost competitive with other forms of energy generation. With all those together, we feel solar has to be a component of any kind of sustainable energy plan. I do not say it's the only thing and I won't knock any other renewable energy technology. I think it's going to require a lot of different technologies to bring us energy in the future.

I'm sure if you've done some background research you've seen a lot of market projections. The market has been really quite good for the industry the last few years and many experts predict this market will continue to increase over the upcoming years.

#### 1940

The market forecast I have here is by Bank Sarasin, one of the large banks in Switzerland. They have a renewable energy portfolio so they've studied the markets quite well and they're projecting quite impressive market growth.

The drivers for this market are also very strong. They're not drivers that are here today and gone tomorrow. Global climate change, environmental concerns, economic impact, the energy shortages in California—all these things are driving our market growth today and we feel strongly will continue to do that into the future.

Why should the provincial government participate in this partnership with the private sector? Good question. Why should you? Why not let the industry do it alone or let someone else do it? I've got a few things for that argument.

I really think this is a rare opportunity to take a leadership role in a new high-growth industry. There are many experts out there today who say that solar energy, solar electricity is going to be the next semiconductor industry, and that comparison goes a little bit further. They say that if you compare the age of the solar industry today with that of the semiconductor, we're at right about the point of the semiconductor industry in the early 1960s. What does that mean? To me that means that the fun and the excitement of our industry is just beginning. There's a great future ahead of us in this industry.

Royal Dutch Shell has done a study and they're projecting that by the middle of this century the largest energy component will be solar. This is an oil company projecting this, OK? This is something that people are taking notice of. You've got countries like Japan and Germany that have said, "Hey, we want to be the home of the next Silicon Valley." They've taken aggressive programs to try to make that happen and I have to tell you today, they've been very successful. If you look at where the market is for solar, where the new companies are being formed, who are the big players in solar, we feel kind of alone here in Canada with our operation, because Japan and Germany are really driving the growth in our industry today.

You also have the opportunity to leverage large investments from the private sector and from the Canadian federal government. Just to take ATS investment plans alone, we intend to invest a little over \$100 million in finishing the development of the Spheral Solar program. I forgot to mention earlier—it was on the slide—that part of the development we have left with this is that we have a joint development with Alcan. Alcan is going to be developing the aluminum part of this for us and they're playing a big role in developing that technology in Kingston. We intend to invest \$100 million in this development and then after it's commercialized, over the next 10 years, we see at least \$1 billion of further investment in equipment and new manufacturing facilities.

Then we look at the federal government. The federal government has several programs that are very active in supporting technology development and technology deployment in solar energy. Industry Canada has the TPC program; we've got CIDA that's very active in solar now; and there's a TEAM fund that's being funded through NRCan. All those funds are being directed at several types of renewable but solar is very popular to a

lot of these programs and you have the opportunity to attract those federal dollars into Ontario.

Providing a cleaner environment: I think that's pretty obvious. This technology has no emissions. I've put together just a few numbers here. This is just from our plans for expansion of Spheral Solar. By the year 2030, we would reduce greenhouse gas emission by 150 million tonnes. This can go a long way toward meeting some of the action plans for environmental climate change in the government.

Another factor that's kind of overlooked: burning fossil fuels creates pollution, but another environmental crisis occurs a lot of times in the transportation of energy. You have crises or catastrophes like the Exxon Valdez, last year the TotalFina oil tanker that crashed off the coast of France. These things also have big impacts on the environment. Solar is the ideal technology for exporting energy. It can be transported with a lot less risk.

The next slide kind of dramatizes our technology here. One barrel of silicon spheres has the energy equivalent, over its lifetime, of 14,000 barrels of oil. So if you have to have a shipwreck on your coast, which would you rather have left on your coast, a barrel of spheres or the oil? It's very nice technology for exporting, and we're really seeing the application of our business is a large export business for Ontario.

Another reason to consider this is that the core industry is already set up here in Ontario. There are several companies that are involved in solar energy, from our standpoint in developing new technologies and manufacturing solar panels, to companies like Ian MacLellan's that put together the systems. You have Alcan, that's supplying components, and they're also interested in the building façade side of the business, aluminum siding, incorporating solar cells. So we've already got a core to start here. You don't have to start from scratch.

How can the Ontario government participate in this exciting opportunity? There are many ways for the government to contribute. Some cost money and some don't. In the areas of not costing money, there are lots of regulations and legislation that could be enacted that could really help benefit solar. One thing that's absolutely critical is a net-metering law. Is anyone familiar with the net-metering laws? It's absolutely critical for any kind of distributed energy source, be it solar fuel cells, small wind, whatever; you've got to have that in place in order to make it economical for a consumer to use this product.

New building construction codes as well: Canada is already well known for designing some of the best energy-efficient buildings in the world. It's an export market force, actually. Changing some of the regulations, requiring buildings to be even more efficient or perhaps generate some of their own electricity, could also go a long way in supporting our industry.

Leading by example: there are many applications where the government could use solar today in their buildings and other institutions.

Risk share technology development: this is a really strong way to not only attract businesses for their energy, but also for their jobs. If you develop the technology in Ontario, then the jobs will stay in Ontario in the manufacturing area. There are several ways to do this. I'm not going to tell you anything that's new here. All of these initiatives have been tried in other places in the world. One advantage you have is you can go out there and see what has worked and what hasn't. But to just summarize some of these things, refundable tax credits, loan guarantees, joint developments with universities—all those are good ways to support technology development. Providing financial incentives for the end users is also another way that has been used successfully in several areas in Japan and Germany, either by buying down the cost of a system that the user might put on their roof or providing low-interest loans or tax credits for using this technology, or in some cases it has been successful to use favourable pricing. For anyone who has a solar system on their roof, the utility is required to buy that electricity at a favourable price to help support the industry. That's a very successful technique being used in Germany today.

I would like to finish by saying I've been a team-builder for all of my career and I strongly feel like putting together teams is the best way to tackle any problem. I feel like a partnership between the private sector and the public sector is absolutely critical to make any of these new technologies successful. I think we have a real opportunity here.

**The Chair:** Thank you very much. We're over time. My apologies that time has run out. It was a very intriguing presentation this evening. Thank you kindly for coming forward.

**Mr Hammerbacher:** I apologize for my high-tech computer.

**The Chair:** We'll get back to those carousels yet.  
1950

JOHN VAN DER VEEN

**The Chair:** Our next presenter is John van der Veen. We have 15 minutes for you.

**Mr John van der Veen:** I am very short-winded. I don't need 15 minutes, I believe.

Has everyone received my letter for today?

**The Chair:** It has been circulated.

**Mr van der Veen:** My name is John van der Veen. I am a retired economist who worked for the federal government for many years. I worked several years, as a matter of fact, in alternative fuels for transportation. I am now a full-time farmer down in Elgin county; in Port Stanley, to be exact. Steve Peters over there is my honourable MPP. What else can I say? I have been interested in alternative fuels for a long time. I'm also a Dutchman, by the way, so this is why I have this great interest in wind power and in windmills. I'm not interested tonight, though, in really discussing the pros and cons of windmills, or even more high-powered ones,



because I understand there are all kinds of experts around and basically the only thing that mainly should interest you is that the cost of wind power right now at Lake Erie is down to roughly 10 cents a kilowatt, which is just about marginally profitable.

As I said, I wrote you this letter. I'm interested in establishing a six-megawatt wind farm on the north shore of Lake Erie on land that I presently own. I own roughly a kilometre-long beachfront. They say that a minimum size for taking into full account economies of scale is 10 megawatts, but to remain conservative and to reflect trial aspects, six megawatts is enough for what I want to do.

Such an undertaking involves roughly C\$8 million and would on average serve approximately 3,000 homes or their equivalent. It would entail probably—and I say "probably" because the technology is rapidly changing every day, practically speaking—six windmills of 900 kilowatts each. I would want to try three of them onshore and three of them just offshore. The wind patterns are such that you can optimize the wind power by putting three of them, in this case, about 100 metres offshore.

My letter to you initially made four points. The first one was that if producers of non-wind energy were to be held financially responsible for the pollution their processes produce, as they should be if you want perfect competition, their cost per unit of energy would be no lower than those of strategically placed wind farms right now.

Second, even now, with competing coal-burning products on the market for electricity production, the selling price that ensues therefrom is such that wind farms are marginally profitable, as I said, if we can get from Ontario Power Generation roughly 10 cents a kilowatt hour.

Third, marginal profitability is not good enough at this point in time; it never will be, I presume, unless the costs come down even more. Right now the price is such that the banks and other investors are not even remotely interested. It's just too high risk. Therefore, that's why I'm here: basically to speak about the last point, which is what can governments do if they wish to bring wind power to the fore much more quickly than the market will eventually do?

I suggest that on a trial basis—and this is very short—if you consider that there is not only an interest for wind power but for other projects as well that are sort of marginally profitable, you consider giving a loan for an appreciable portion—say, 75%, 100% or so—of the \$8 million required, that the yearly interest thereon would be a market rate of roughly 8% but that the payments of interest be equal to the yearly net income exclusive of that interest on that project. In other words, this is really quite simple: you charge the 8% on the loan, but you don't require me to pay that full 8% if in fact I don't make the money, excluding that payment. Is that clear? Does that make sense?

**Mr O'Toole:** That's what Ontario Hydro had during nuclear.

**Mr van der Veen:** Is that what they had?

**Mr O'Toole:** Yes.

**Mr van der Veen:** Well, that's what I want.

If it's a good wind year, for example, if the prices go up and if there's a lot of wind—because there is variability from year to year in the amount of wind in any particular location—then I would pay the 8%, plus whatever the net income is excluding that interest. In other words, the full amount of the net income would go to the government, either as a payment on that interest or as a reduction of the principal. Then, I'm saying, at the end of 20 years, if there is any principal left outstanding with that deal, then you forgive that remaining amount, if there is any such remaining amount. I think by considering that mechanism, you would be expediting wind power substantially, as much as you've expedited the workings of Ontario Power Generation, as Mr O'Toole just finished saying. Any questions?

**The Chair:** We have about a minute and a half per caucus, starting with the government side.

**Mr O'Toole:** I want to be on the record as supporting wind power provided the source is appropriate. But I want to correct the record too. I think Ontario Hydro, under the Power Corporation Act, had what they call SDR, strategic debt retirement, which required them to pay back a certain amount of the debt each year as a percentage of the cost on the full charge of a kilowatt, at about six cents.

When they were building nuclear, which was designed on a mortgage of about 20 years, in one of the footnotes in their financial statements, in about 1994, they changed the amortization period from 20 years to 40 years. That is the life of a plant. Guess what it did to the debt? It lowered the mortgage payment over 40 years. So that's how it was handled. It was very high finance, and it ended up with a lot of stranded debt.

Wind power comes out at about nine cents a kilowatt. That's what we were told during all the hearings—

**Mr van der Veen:** It depends on location.

**Mr O'Toole:** —during competition hearings, during the deregulation discussions about Ontario Hydro when they formed OPG and Hydro One. My question to you is, how much capital does it take to really generate—of this \$8 million, is that all just capital infrastructure?

**Mr van der Veen:** That's all.

**Mr O'Toole:** It doesn't include the land or—

**Mr van der Veen:** It would be 10 cents at this location. This location is not optimum in Ontario. It's very good, but it's not optimum. I think as a matter of fact Kincardine might have a slightly better location, although it has never been fully tested. There have been all kinds of tests but not fully tested. I'm assuming it's roughly 10 cents a kilowatt right now, with the present technology. What was your question?

**Mr O'Toole:** The \$8 million, did that include the land or just the infrastructure?

**Mr van der Veen:** Just the actual machines.

**The Chair:** We'll move over to the official opposition.

**Mr Peters:** Just a couple of observations on John's proposal here. I think one of the issues of dealing with offshore wind power—and we heard about that earlier in a couple of other presentations here—is that we're going to have to keep in mind as we get into some jurisdictional issues of the federal government having control of the water beyond the water's edge.

The other observation, where John lives—and it's a serious problem on the north shore of Lake Erie—is that we're losing hundreds of acres every year into the lake as a result of erosion. That may be something else you should consider pursuing, John. I don't say that tongue-in-cheek. If there were some way to harness the wave power and deal with the waves, then maybe we could solve the serious erosion problem. But the jurisdiction is something I think you're going to have to consider.

**Mr van der Veen:** I could answer that, Steve. In my 100-acre farm right now there is about 45 acres worth of a water lot. That's on my tax bill and everything else. That comes from the original deed of the property. There might be some legal reasoning behind that I do in fact still own that even though it's presently under water. Secondly, if I build an island on which to put the wind-mill then that's no longer in the water, is it? So there's another consideration. I'm saying, legally speaking, there is sort of—as far as the erosion, the erosion rate is roughly two feet per year.

**Mr O'Toole:** You must have worked for the federal government.

**Mr van der Veen:** I did indeed.

**Ms Churley:** Just one quick question, because I think we're pretty much out of time. I'm just curious. You're an individual, you're a farmer, and it sounds like you want to grow something different on your land. I'm wondering if there are other farmers—we've had companies come in promoting wind power but you're the first individual. Are there other farmers interested in pursuing this on their own?

**Mr van der Veen:** There are several other farmers in my neighbourhood who were approached by Vision Quest from Alberta, as was I. They offered a contract to us which is worth a couple hundred dollars per year and it tied us up for roughly 10 years. It's so ludicrous really that in fact it tied our hands. But at that time many different farmers met with me and said, "What do you think? Being an economist, what the hell do you know?" The truth of the matter is, they don't know exactly how to proceed. They know that fairly large amounts of money are involved. They don't have the money, of course, in their pockets, and this is really why I'm here. If this thing works out to my satisfaction, then I'm sure you're going to get lots of other people involved also.

**The Chair:** Thank you very much for a most interesting presentation and good luck on building your island out in Lake Erie and negotiating some of that land under the water. We appreciate your presentation. We've heard quite a bit about wind power this evening. It's been intriguing, to say the least.

We now stand adjourned and we'll reconvene tomorrow at Queen's Park, room 151, at 9:30.

*The committee adjourned at 2002.*



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Second Session, 37<sup>th</sup> Parliament

## Assemblée législative de l'Ontario

Deuxième session, 37<sup>e</sup> législature

# Official Report of Debates (Hansard)

Wednesday 29 August 2001

# Journal des débats (Hansard)

Mercredi 29 août 2001

**Select committee on  
alternative fuel sources**

**Comité spécial des sources  
de carburants de remplacement**



Chair: Doug Galt  
Clerk: Tonia Grannum

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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Wednesday 29 August 2001

Mercredi 29 août 2001

*The committee met at 0930 in room 151.*

## ONTARIO ENERGY BOARD

**The Chair (Mr Doug Galt):** We'll call to order the select committee on alternative fuel sources. Our first delegation for this morning is the Ontario Energy Board; the chair is Floyd Laughren. We also have with us George Dominy, Michael Lyle and Kirsten Walli.

Welcome. We look forward to your presentation. Thank you very much for coming out. A half-hour has been set aside for presentation, questions, statements; also comments from various members of the three parties.

Welcome, Mr Laughren. We look forward to your comments.

**Mr Floyd Laughren:** Thank you very much, Mr Chair. We are pleased to be here. I should indicate who the people are that you named off from the energy board. To my immediate right is George Dominy, who is the vice-chair of the board; to my immediate left is Kirsten Walli, who is manager for strategic services at the board; and at the end to my left is Mike Lyle, who is the board's solicitor. Hopefully, with that combination, we'll be able to answer any questions that you might have.

It is good to be back here and I assume that today, given what I read in the press, most members will be in a good mood as we proceed forward.

Let me begin with an overview of the board I thought we would present and talk a bit about who we are, our role in alternative fuel and energy sources, and a word about energy efficiency as well. The reason I put on the slide "Who is the Ontario Energy Board?" is that we are not exactly a household name. We're not the LCBO, which everybody knows about, so I think it's fitting to make a few comments about who we are.

We are a regulatory agency with responsibility for oversight of both the gas and electricity sectors and we are an economic regulator regarding rates in both those sectors. We're independent and quasi-judicial. When I say "independent," we're independent in our decision-making. We obviously go through government to Management Board for budget approval and so forth, even though all of our money is collected from the people we regulate. We report to the Legislature through the Minister of Energy, Science and Technology and advise him or her on energy matters.

The legislation that gives us our mandate is fairly specific. It requires us—and it's important to notice the words in our objectives—to facilitate competition and supply of electricity; to ensure non-discriminatory access to transmission and distribution systems; to protect consumers with respect to prices and the reliability and quality of service; to promote economic efficiency in generation, distribution and transmission; to facilitate financial viability of the industry and, finally, and I highlighted this, to facilitate energy efficiency and use of cleaner, more environmentally benign energy sources consistent with government policy.

The reason I mentioned the choice of words is—you'll notice the word "facilitate" in there—because we don't drive government policy but we take government policy and work with it. I think it's important to make that distinction.

Also, I'd ask you to note that there can be, not necessarily contradictions, but a balancing act required. For example, the third bullet talks about protecting consumers with respect to prices, and the last bullet talks about facilitating energy efficiency and cleaner, more environmentally benign energy sources. Well, the consensus is that those are more expensive, so we protect consumers, but at the same time we're responsible for facilitating what certainly now are more expensive sources of energy as well. So there's a balancing act required by the board.

On the gas side, we facilitate competition in the sale of gas, maintain just and reasonable rates for transmission, distribution and storage, and of course those tend to be the monopoly components of the system, and virtually all jurisdictions regulate the monopoly components. We facilitate the rational expansion of systems so that people don't pay unduly for an expansion of a system, and the rational development and safe operation of gas storage. The final one is to facilitate opportunities for energy efficiency consistent with government policy. Again, there's that word "facilitate" and also the phrase "consistent with government policy."

What has changed in the electricity market? If you look at the centre of that chart, it used to be that there was Ontario Hydro, especially known far and wide as Mother Hydro, which did the generating, the transmission, some of the distribution and largely sold to local distributors. That is changing and it will change even more dramatically when the market opens.

Hydro has been broken up, so you'll have the generating side. The dominant player, of course, is Ontario Power Generation Inc, OPGI, and there will be other competitors coming into the fold as well. Then you'll have the transmission lines, known as Hydro One. They also do some distribution, of course, largely in the rural areas of the province. Then you have new players on the scene called retailers and some of them have been at your door. I know that MPPs have from time to time written me letters wondering what's going on with these retailers who are going door to door because we do license the retailers. But now a retailer can buy and sell electricity, even though it all obviously has to go through the distribution wires. So all of that is changing.

We are supposed to uphold the public interest by licensing all electricity market participants. That includes the distributors, such as Toronto Hydro or Mississauga Hydro; the retailers, the folks who go door to door; the generators, such as OPGI and private generators as well; the wholesalers, who could assemble contracts and assemble electricity; and transmitters, such as Hydro One and the IMO, the independent electricity market operators who operate the grid. We license them and approve their budget as well.

What is probably more familiar to MPPs is the licensing of the marketers and the retailers. We call them marketers on the gas side and retailers on the electricity side. We establish codes and standards of performance for them. If they misbehave, the board can either pull a licence on their employer or could impose fines on them for misbehaviour. Of course, we also approve rates for gas and electricity transmission, the big lines, and for distribution, the more local lines as well.

We approve mergers, acquisitions, amalgamations and divestitures involving the monopoly businesses. For example, all of the purchases by Hydro One of those small utilities across the province—I believe the last number that they had purchased was 87. We approve those and the reason we have to approve those—there are a number of reasons, but one is that you couldn't have a purchaser, not just Hydro One but anybody else, paying an outrageous price and saying, "I'll just get back in my rates what I paid for it." There has to be approval to make sure that merger or that purchase is in the public interest. We have now approved and virtually finished all of the mergers and acquisition approvals. There's one up in York that's having its own peculiar set of problems and it isn't resolved yet but that's because a deal fell apart. We'll see what happens there.

When we're finished, when all of this is said and done, there'll be—how many?

**Ms Kirsten Walli:** There'll be approximately 98 utilities.

**Mr Laughren:** Sorry, 98 utilities at the end of the day. A couple of years ago there was over 300, so you can see there's been quite a rationalization of the municipal utilities.

We also monitor utility performance, compliance and efficiency to make sure that they're following the approvals that we've given them. And, we inform

consumers through our Web site, through fact sheets that we will issue from time to time. We also have a customer service centre or a call centre; it's fairly small, but we have a call centre that people can phone in and get information. Also, when the market opens we will play a role in what we call market surveillance to make sure that people are following the rules and that there's competition being encouraged, particularly on the generation side where you have such a big, dominant player in OPGI.

#### 0940

A word about our role in alternative fuel and energy sources: I'm not trying to avoid it, but the role we play isn't as central as some people might think. We take guidance from government directives and policy. I'll remind members of the guiding objective that was on the screen earlier: to facilitate energy efficiency and the use of cleaner, more environmentally benign energy sources in a manner consistent with the policies of the government of Ontario. So we do have a responsibility to facilitate that.

There's a 1999 board regulation that says retailers must disclose to consumers the sources used to generate power in Ontario. The board determines how and when disclosure is to be made to consumers. That means that somebody cannot just simply knock on your door and say, "I'm a green energy supplier. Sign up with me. It'll cost you more but it'll be green and you'll feel good." We can't just allow that, because it has to be real, and I'll show you how in a minute. When someone applies to generate electricity, they need a licence from us. They must identify the fuel type that they intend to use to generate power.

In a board directive of March 1, 2000, we said that retailers offering electricity from alternative sources must provide consumers with a label showing electricity sources used to generate the power and Ontario's electricity mix for comparison. I know that putting a label on electricity sometimes requires your mind to bend a little bit, but that's what we do. All suppliers of electricity, both distributors and retailers, must provide consumers with electricity facts labels showing what Ontario's electricity mix is, whether they're offering green power or not. The environmental disclosure obligation is included in their electricity retailer licence. So it's a condition of their licence. If they want to sell green power, God bless them, but they must disclose that. That's a condition of their licence.

This is what I meant by labelling; it's on the screen now. On the right-hand side you have basically what Ontario's mix is now, with water power about 27%, and you have alternative power sources about 2%. So you can see it's not a big factor today in the mix. Nuclear is about 39%, natural gas 6% and coal and oil 26%. On the left-hand side, whoever was selling green energy would have to put in there what their mix was, so that the consumer can see that they truly were a green energy provider.

The other point that should be made is that in the new world, power will be bid into the grid through the IMO



on a basis of price, lowest price first, so that if green power is more expensive, it would never get there unless you had a rule that said if there's a contract for power, that has to be let into the grid. So if someone comes to your door and sells you a green package, even though it might be more expensive—I'm not saying it would be—if it was and there's a contract when you sign up and there's a contract for that green power, then the IMO has to allow that into the system. You would then pick out whatever electricity you require and so forth. That's an important distinction; otherwise, green power wouldn't get into the grid, because it tends to be more expensive.

We have a role in energy efficiency. You can see that we don't have a large role in alternative energy sources. We do have a role in energy efficiency, which I know is not the same as alternative energy fuels, but at the same time, energy efficiency means you're not using as much of the traditional forms of energy. Once again, our objective, as laid out in the legislation, is to facilitate energy efficiency consistent with government policy.

In a board order dated July 23, way back in 1993, the board directed gas utilities to develop demand-side management—DSM—which means altering demand, either because of the time of the day or the quantity that's used, according to guidelines that were set out in that report. DSM encompasses actions taken by a utility or another agency to influence the timing or the amount of fuel that's consumed by consumers. A sample portfolio of DSM programs that utilities offer, talking about gas utilities: with residential, it could be hot water heating, water conservation, space heating, home retrofit, green communities and appliances; commercial, the energy-efficient design, space and water heating and water management; and on the industrial sites, audits and customer initiatives for those large industrial sites.

In electricity, at this point in time it's more problematic, if I could use that term, because the guidelines are not yet developed for demand-side management on electricity. It's being considered, and as we go down the road and the market opens and the distributors come in for renewal of their rates and so forth, we're working now on developing demand-side management for that, what we call the next generation of rate applications and approvals. We have, though, encouraged utilities to continue—they already have demand-side management programs—to use those and to offer new programs if they can be done cost-effectively. We can't just have them going out and doing them at exorbitant costs. We have encouraged them, however, to do that.

In conclusion, the board's role is to facilitate alternative energy sources, and on the electricity side, my view is that we'll do more of that down the road as we get a little more sophisticated about how to do that on the electricity side. We do have a balancing act in terms of protection of the consumer regarding rates. As I said right at the beginning, there is a balancing act for the board to protect consumers in terms of rates but at the same time facilitate the development of alternative energy sources and energy efficiency. So that's our role

and I'd be happy, with my colleagues, to try and answer any questions you might have, Mr Chair.

**The Chair:** Thank you very much, Mr Laughren, for an excellent presentation. We have about two and a half minutes per caucus, and we'll start with the official opposition.

**Mr Ernie Parsons (Prince Edward-Hastings):** Good morning. You mentioned that the electricity is bid in and as the quantity required comes along, then there'll be higher bids in. Suppose the first price is seven cents a kilowatt hour and then the next bid is eight. Does the initial supplier remain at seven or does it move up to the current market rate, which would be eight, and then if you need more and it's 10, does everybody move up to 10?

**Mr Laughren:** I think they do. I think that's right.

**Mr Michael Lyle:** Yes, everyone would move up to the market clearing price and we could pay the market clearing price. So that would be the 10 cents in your example.

**Mr Parsons:** So it is possible, then, that the supplier of the dirty electricity at seven cents could in fact get the same price as the expensive green electricity. At various times during the day, if the demand is high, it moves up to the high price?

**Mr Lyle:** That's correct. The market clearing price is how the price for the entire market is set, so that's generally the marginal producer.

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**Mr Parsons:** I now understand it, but I have trouble with the theory that the dirty producer will get the same price as the clean producer.

Second question: the explanation that I've been given, and I know this is complex, is that Californians experienced their problems because they have not built new electricity generating stations for 10 years. I don't recall new stations being constructed in Ontario over the last 10 years. How will we be different from California? Why is it going to work here, compared to California, in 20 or 30 seconds?

**Mr Laughren:** Excuse me, Mr Parsons. Are you talking about alternative energy sources or just generation?

**Mr Parsons:** Just generation of electricity.

**Mr Laughren:** This might be a better question directed at government, but there have been announcements of new generation coming on stream. The theory is that as Ontario Power Generation is broken up in the next 10 years and sold off or leased out etc, that will encourage new competition into the field and you will get new sources of generation that way. Also, there are what we call the tie lines between neighbouring jurisdictions being enhanced by Hydro One, both with Quebec and other jurisdictions, which in terms of supply would make available to the province increased supply.

**Ms Marilyn Churley (Toronto-Danforth):** Good morning, Mr Laughren and others. I just want to follow up on the demand-side management or load management issue. We had a deputation yesterday from Collingwood

Utility Services, which I imagine you're familiar with, and they said that in their opinion, in the US, in California and other areas, after deregulation the private sector, in order to satisfy their stockholders and to make money, just stepped aside from demand-side management to make the money and that played a huge part in the energy crisis there. They said that it's essential, as we go down that road to deregulation, that it be brought in. Otherwise, the same thing could happen here. Could you comment on that?

**Mr Laughren:** I honestly don't know if they did walk away from demand-side management programs. I don't know that. I suppose it would put an increased demand on limited generation if that was the case. Right now—I think it's fair; I don't want to be unfair—I don't think there's a lot of demand-side management on the electricity side. There are some programs, but I don't think it's a major player in terms of how much electricity gets consumed in the province.

**Ms Churley:** I think what they were saying is that, because we're going down the road to deregulation, it was essential to bring it on stream now.

**Mr Laughren:** I understand that, and I don't want to get into a swamp here. There's a form of regulation called performance-based regulation. Our hope is that as we move forward, as we move into that for what we call our second generation, we will be able to build into that some DSM programs that will encourage the electricity sector to engage in those programs in that the performance-based regulation is incentive-based. They are somehow created so that it's an incentive for them to do that, because they are commercial entities and there needs to be an incentive for them to do that.

**Mr John O'Toole (Durham):** Good to see you again, Mr Laughren. It wasn't too many years ago you were sitting on the opposite side on the nuclear select committee. I'm sure some of the questions are still out there unanswered. But it's a pleasure to see you.

Just a couple of very basic administrative questions. First, the Ontario Energy Board is not new; its mandate has certainly been strengthened and reformed. I just wonder—in a very short response, if you could, because I've got two or three questions—about the number of staff in the budget.

**Mr Laughren:** There are some vacancies waiting to be filled and that sort of thing, but we have about 110 complements and our budget this next year will be flirting with \$20 million—not quite, I don't think, but that's the last number I saw. That's pretty close.

**Mr O'Toole:** Is that pretty much operating? You don't really have much of a capital budget I wouldn't think.

**Mr Laughren:** No.

**Mr O'Toole:** I just wanted for the record, since this is all recorded, in my humble kind of citizenry perspective, to explain my understanding of the California market, as it does come up and will come up as we move toward a competitive market. California's dilemma was freezing price while the cost of their baseload, natural gas, was

rising. They were buying a fuel which creates the energy higher than they were selling the product for. A huge debt accumulated. Not only that, but it was impossible for the infrastructure itself that is in the transmission lines to keep up with the growth. They hadn't had transmission increases in over a decade. The whole NIMBY, environmental opposition process was in place and the infrastructure was incapable of looking after the 30% growth in the economy.

That's basically the short story, as I understood it, and every situation that I've heard in comparison indicates that Ontario is not in the same position. In fact, you and I heard during the consultations on the nuclear industry that there was excess capacity. Since we've got so much capital tied up in the generation side on the nuclear, some of it was somewhat stranded in some respects as capital. So it's quite a different situation.

But I guess I will ask a couple of specific questions. We heard from the non-mainstream, mainly wind and solar, that they want the playing field levelled. There have been huge subsidies, direct or indirect, to the generation side, whether it's the nuclear policy decision of years ago and the consequent debt that mounted—

**The Chair:** We're really out of time.

**Mr O'Toole:** I just wondered that, if you could, and about the emission credits. As Ms Churley mentioned, the distribution or peak load management is a real serious requirement for them, because nuclear will get the cheap side, they will get all the baseload side, and the others who can come on are going to end up with the fossil taking up the rest, the peak load demand. They have clearly demonstrated that peak load can be managed, moved around. Owen Sound is a good example. Perhaps in a general sense the Chair might give you some time to respond to emission credits and the option for the alternative generators, like wind.

**Mr Laughren:** I think our role—

*Interjection.*

**Mr Laughren:** You still heckle around here, do you?

**Mr O'Toole:** Just Marilyn.

**Mr Laughren:** You're not supposed to heckle the witness.

**The Chair:** We'll give you a second or so to respond, please. Go ahead. I'll try to control these hecklers.

**Mr Laughren:** I know it's tough.

Our role on emission credits—I don't think we have one. Maybe Mr Lyle can help me.

**Mr Lyle:** The board doesn't presently play a role with respect to emissions trading.

**The Chair:** Thank you very much. We appreciate the presentation and your coming forward. Good information on the operation of the Ontario Energy Board.

## ONTARIO POWER GENERATION

**The Chair:** The next delegation is Ontario Power Generation: Graham Brown, chief operating officer; Helen Howes, vice-president, sustainable development;



and Graham L. Brown, general manager, OPG-Evergreen Energy.

There has been a lot of discussion up here as to which direction you're aiming that windmill at, whether it's the opposition or the government side.

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**The Chair:** Welcome. We appreciate your coming forward and look forward to your presentation. A half-hour has been set aside for your presentation and whatever is left over will be divided up among the three parties for questions.

**Mr Graham Brown:** Thank you very much for the opportunity to address the committee this morning. I should probably just apologize up front for fielding two people with the same name. This is not to confuse you, although it does cause a lot of confusion inside OPG. We call Graham L. Brown, who is manager of our renewable energy business, Little Graham in OPG. That's because he's six inches taller than me. That actually helps everyone understand who's who. And thank you for introducing Helen, our vice-president of sustainable development.

As I say, we're delighted to address the select committee on green power and in particular OPG's activities in this area. I think we've got a very good story to tell and we're pleased to have the opportunity to tell it.

I think our contribution so far has been substantial. I also think it's pretty consistent with the government's vision that Ontario's new energy market should encourage the full range of development of alternative fuels.

I think we're working very successfully toward giving life to this vision but we always have to do that cognizant of the need to strike a balance with a number of other key responsibilities that we have within the province. These are, namely, to provide reliable and competitively priced electricity; revenues that return value to our shareholder and in particular help to pay down Ontario Hydro's legacy debt; and thirdly, to demonstrate continued and continuous improvement in our environmental performance. Today, I want to outline how OPG proposes to continue its strong support for alternative energy while always fulfilling those obligations that I just described.

With your permission, I'd like to cover three areas: first, OPG's alternative energy strategy and some of our current initiatives, something you asked us specifically to talk about; second, I'll talk about our efforts to encourage research and development of new and alternative energy technologies; and finally, I'd like to make a few observations on the prospects for a healthy green power presence in Ontario. The committee has asked several questions relevant to this part of my presentation which I'll reference when I get to this section.

The first area, then, is OPG's overall green power effort. Green power is low-environmental-impact electricity generated from renewable energy sources and/or technologies. So far these include wind, solar, biomass and run-of-the-river hydroelectric facilities. As part of our goal to become a sustainable energy company, OPG has made a commitment to pursue industry leader-

ship—and I mean leadership—in alternative technologies in Ontario. To support this commitment we have pledged to invest at least \$50 million in green power projects between 2000 and 2005. We're already Ontario's largest alternative energy producer. Our goal is to build on this strength and to increase our green power portfolio from about 138 megawatts today to 500 megawatts by 2005. That's enough to meet the annual energy needs of a city about the size of London, Ontario.

To deliver against this expanded commitment, we created, quite recently actually, a new operating division named Evergreen Energy, which is run by Graham, sitting to my left. Its role is to develop green power for OPG through (1) purchases from established green power generators; (2) building or partnering with companies to develop new generation facilities; and (3) partnering with customers to develop green power alternatives for their particular business.

Ultimately our commitment to green power is driven by our customers, who have told us they want a green power option. As a commercial entity, we will of course give them that option. However, since this kind of energy still generally costs more to produce than conventional power, we're going to market a blended green power offering that balances affordability and availability with customer preferences for some of the more expensive sources such as solar and wind power.

Turning to our specific achievements in alternative energy, many of our initiatives are firsts, both for OPG and Ontario, and reflect the leadership position we're seeking to establish. In wind energy, for example, we are building Ontario's first wind farm in partnership with British Energy Canada. That's on the Bruce Peninsula. Today at our Pickering nuclear generating station, we are also switching on the largest wind turbine in North America. It's a 1.8-megawatt unit, a model of which Graham is proudly displaying in front of him, capable of powering 600 homes a year. We're also installing a demonstration wind turbine at St Lawrence College in Cornwall to provide hands-on learning opportunities in renewable energy sources.

With respect to run-of-the-river hydro generation, we currently operate 29 such facilities across Ontario, representing an installed capacity of about 125 megawatts of low-impact generation. We are currently looking at redeveloping some of these existing sites, as well as developing new run-of-the-river sites for additional green power. As an example, I'm happy to announce today that work will begin on a new, low-impact generation station near the current site of our Ear Falls generation station in northwestern Ontario. When it's complete, by 2003, this new facility will produce a further 12 megawatts of green power.

In the area of biomass, we currently purchase all the electricity generated by two Ontario biogas plants. These plants are in Waterloo and Newmarket and use methane gas produced from the decomposition of municipal organic wastes. One of them, the plant in Newmarket, is helping to address Toronto's garbage disposal problem.

We are also exploring potential uses for solar power and have recently installed solar rooftop panels at our head office as part of this initiative. A solar wall heating system will be installed next month at the offices of Evergreen Energy in North Bay to reduce dependence on natural gas building heating.

This is only a partial list of our green power accomplishments. We hope these and our other achievements will act as a catalyst for Ontario's alternative energy market, while at the same time positioning us as an early mover and a leader in this area.

The second area I want to touch on is the strategically critical area of R&D, research and development, and the search for new applications and technologies. I say this is critical because to be a leader in green power it's essential to be involved at the ground floor in as many potential breakthrough opportunities as possible. The more options we have, the better our chances of success. To this end, we sponsor several alternative energy R&D projects through our science and engineering services subsidiary, Kinectrics. These include initiatives in distributed generation, bio-energy, energy storage and using hydrogen fuels from industrial off-gases to efficiently use waste energy from industry.

One of our most exciting ventures is the work we're doing, in partnership with others, in developing a commercially ready, solid oxide fuel cell. A combined heat and power plant, this fuel cell will be the first of its kind in the world and puts OPG at the forefront of what is to be, I believe, a very important technology.

We're very excited about the work being done through OPG Ventures Inc, another of our new subsidiaries. Over the next three years, OPG Ventures will invest, directly and indirectly, up to \$100 million in companies with promising alternative energy or related energy technologies. Recently, for example, OPG Ventures committed to invest US\$10 million in a venture capital firm whose portfolio of companies include a leading-edge voltaic module manufacturer, a fuel cell developer and a microturbine company.

At this point I would like to add that while green power is a growing component of our generating portfolio, it is part of a much deeper environmental commitment of which we're very proud. Our nuclear, hydroelectric and fossil fuel stations, for example, are among the cleanest and most environmentally responsive generating systems in our market region. Several other OPG environmental accomplishments are mentioned in the unabridged version of my speech which we're leaving with the committee. I hope you'll have an opportunity to consult it and get a better sense of the wide range of environmental achievements we've made over the last decade.

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The final area that I'd like to cover this morning is the future of green power within the province. The committee has asked me to comment on what impact market opening will have on the promotion of green power sources and on future policies and programs to encourage

these sources. I think an open, competitive market will enable and encourage the supply of alternative energy sources. New competitors will be eager to tap this new niche market, just as OPG is.

In the US, close to one million customers are buying green power in competitive markets. We believe that consumer demand in Canada will also grow as more green options become available and prices to produce these green products decline.

In Ontario, some large electricity purchasers have already made public their intention to purchase green power, such as Dupont, Toyota and, indeed, the city of Toronto. As many as 40% of Canadian consumers have also said they are prepared to pay more for green power products. We hope that with the opening of the market, Ontario will see the emergence of more alternative energy. In addition to environmental benefits, the successful development of alternative energy in Ontario will bring with it economic spinoffs for the province. For example, all the equipment for OPG's solar panel installation at our head office was purchased from Ontario-based companies.

Nevertheless, at this point in time it's difficult to predict with precision the pace of growth and the ability of the province as a whole to sustain a vital green power sector, for a number of reasons:

(1) Despite technological advances, which have reduced its cost, green power is still more expensive for suppliers to produce than conventional forms of energy. Consumers will have to pay a premium;

(2) Given the extra costs, it remains to be seen just how much consumers in Ontario are willing to pay for green power once it's available in the marketplace. Widespread acceptance is not a foregone conclusion, despite surveys that suggest otherwise;

(3) Finally, there's the Mother Nature factor. The sun doesn't always shine—although it shines more than it does in Europe, I have to say—the wind doesn't always blow and, as we've seen this year, water levels are not always as high. In fact, the water levels this year mean that output from our traditional and run-of-the-river hydro sites is the lowest in some 35 years. As an intermittent energy source, green power cannot on its own meet the energy needs of Ontario. We therefore have to recognize that alternative energy works best only within a broader mix of conventional generation sources. It's a supplement; it's not a substitute.

Having said that, a number of things can be done to stimulate green power development in Ontario. Supportive public policies can be, and have been elsewhere, very effective in creating a viable alternative energy sector. For example, the US government's production tax credit of 1.7 cents per kilowatt hour has been instrumental in generating remarkable growth in wind power development in that country.

Just across Lake Ontario, in New York State, Governor Pataki recently signed an executive order mandating that state agencies lead the way in green power procurement by buying 10% of their electricity



from renewable sources by 2005, and 20% by 2010. Without such supports, Ontario's green energy market cannot be expected to realize the same rapid growth as experienced in these other leading jurisdictions.

I understand that there are stakeholders and associations working together to identify opportunities and barriers to green power and assess possible courses of action. OPG is participating in some of this work and we're optimistic that some innovative recommendations will come forward which are appropriate to the Ontario marketplace.

We would like to encourage the search for policy options that promote green energy in an even-handed, equitable approach. We should be wary of policy solutions that would disadvantage Ontario producers by imposing costly standards that would not be similarly imposed on out-of-province suppliers. We should also recognize that policies can directly impact on electricity prices. This can influence acceptance by consumers, who have a threshold beyond which they are not prepared to absorb premium energy costs.

There are also some straightforward ways to stimulate consumer demand. The provincial government is showing the way through labelling regulations that disclose supply types and associated emissions. Companies are also doing their part. OPG, for example, is actively supporting, with other companies, the development of a publicly recognized green energy certification system to help retailers in marketing alternative energy to customers.

More of course can always be done. The government, for example, could adopt green power procurement targets, which can be effective in showcasing Ontario's leadership in the green energy market. Both government and business could also initiate or expand consumer education efforts to inform the public of new energy options.

To sum up, we agree with the government's position that Ontario's competitive electricity market should support the search for alternative sources of power, and we will do what we can to help make this a reality.

OPG is the largest green power producer in the province, and the only commercial entity to make the significant commitment of 500 megawatts of output from alternative energy. We are also the only Ontario producer to have commercial-sized wind turbines in operation, and the only producer to announce plans for a wind farm. We are very proud of these commitments. At the same time, we recognize that green power will make its greatest contribution as part of what I described earlier as a wider generation mix. This will enable us to continue to meet our fundamental responsibilities of providing a good return for our shareholder and responding to our customers' needs for reliable electricity and competitive prices, balanced with clear environmental protection.

We have brought some additional information to the committee describing in detail our alternative energy initiatives, our energy efficiency program, and our sustainable development activities. If we can be of any

further assistance to you in your work, please don't hesitate to contact us.

As you know, we have invited all members of the committee to attend our wind turbine launch at Pickering this afternoon. I know how busy you are, so in case you can't attend we are delighted to be able to give each of you one of these beautiful models of what, as I said earlier, is one of the largest wind turbines in the world and certainly the largest in North America.

Thank you very much for listening. We're very happy to take your questions.

**The Chair:** Thank you very much for a most interesting presentation. We have approximately three minutes per caucus, beginning with Ms Churley.

**Ms Churley:** Thank you very much, Mr Brown, for your presentation. I'll have to let you know what my bias is at the beginning. I believe that in order to save the planet and to save lives we've got to start thinking outside the box, and I just don't think that OPG is doing that. We have to ask the question, when you think about it logically, "Why do we have to accept that we pay more for green power that doesn't pollute and less for power that does pollute?" For instance, when we hear from people who want to bring on green power and alternative power, that is continually one of the problems. The issue is one of finding instruments and tax incentives or whatever else to bring them in, and that's still not there. At the same time, we understand that other forms of traditional energy have been subsidized and are still being subsidized. It's all topsy-turvy. I just think that we've got to start rethinking that.

I want to ask you a specific question about the Bruce nuclear plant. It's my understanding that the private company remains shielded by the nuclear liability act from all but about, what is it, \$75 million or so of liability and that OPG shares that cost uncertainty in decommissioning and waste costs. In other words, nuclear energy is still being subsidized and we sit here talking about the difficulty of bringing green power on. There's something wrong with this picture.

1020

**Mr Graham Brown:** I can certainly confirm that OPG shares the long-term liabilities on the Bruce lease. I think more generally, about the cost of producing alternative energies, we're an informed buyer of generation capability. That's to say we can go out and build nuclear plants, we can build wind power facilities, as I mentioned we're doing, and we can build conventional fossil fuel stations. All I'm able to advise the committee is the relative costs of us generating from these sources. We don't determine those numbers.

What I can say on the plus side is that the costs per kilowatt hour of output of these alternative energies have fallen significantly over time. For example, the wind turbine that we're opening today at Pickering is three times the size of the wind turbine that we built in 1995 which is operating at Bruce, which is, in turn, probably twice the size of a lot of the wind turbines that are operating in Europe. As those turbines have got bigger,

as the technology has got better, the cost is falling, but the cost of conventional technologies tends to fall too. It is a fact, perhaps an unpalatable one, but it's a fact still today, that these alternative energies do cost more at the point of production than some of the traditional sources.

We can address that issue in a number of ways, and the perfect solution, I believe, is if consumers are willing to pay the full premium to encourage the growth of these alternative technologies, because markets work best when they're demand-led. My belief is also that consumers won't pay all that currently and that we need other—

**Ms Churley:** But they shouldn't have to.

**The Chair:** Thank you very much. We'll move to Mr Gilchrist.

**Mr Steve Gilchrist (Scarborough East):** Thank you for your presentation this morning. I've got three quick questions, and I think Mr O'Toole might have a question as well.

First off, I wonder if you could share with us—probably not here but in whatever detail you can, and I hope that's considerable—everything you can about Adam Beck 3. Obviously, looking at the ability to expand the hydro power, it's one of the more benign ways of generating and to know that there's another option there is something that's quite intriguing.

Secondly, perhaps you could give us a price break for where in rural and remote Ontario it becomes more cost effective, even recognizing your comment just a second ago to Ms Churley that generally speaking alternative fuels are more expensive to create. Given line loss, surely there is a point, and I would imagine it's not much more than a quarter of a mile, where there would be a trade-off with what you charge to put up poles and string wires to service cottages or hunting camps or remote communities, native reserves. The efficiency today and the cost of putting up a turbine might make that even a short-term solution here.

Thirdly, again, if you wish to comment somewhat briefly, but hopefully at greater length in writing back to the committee, we had concerns expressed from the Collingwood utility yesterday that in fact the open marketplace and a lot of the rules that have been set will act against the idea of demand-load management and the idea of encouraging utilities to shift demand to off-peak times. Perhaps as an extension of that question, should the province be considering mandating—not allowing as an option, but mandating—the charging of peak and off-peak rates to all consumers after the market is opened up?

**Mr Graham Brown:** Perhaps I could deal with those in a different order. We'll certainly give the committee a detailed answer of OPG's advice in each of those areas.

The distributed generation question, your second question first: typically, and this is a broad generalization, these alternative energies cost between two and three times per unit of output the cost of conventional power. Clearly, the further you are away from a centre of generation, the more of that incremental cost is covered

by the savings on distribution. We, and I'm sure others, in developing these schemes take that into account in looking at where it's best to position them, so it's certainly true to say that these schemes are more attractive when they're in an area of high distribution costs. They compete. That's true of a lot of other technologies as well. Cogeneration schemes are better because they're on site and you avoid these costs.

I should just add, though it's not necessarily relevant to this, that the more of the system costs you avoid by local generation—the system cost doesn't go away. I think Floyd would have made this point. That cost, then, has to be shared over the people who remain and the costs for those who are not getting the benefit of these distributed technologies goes up.

On Beck, again, we can give you a detailed answer. We as a company would dearly love to be able to make the Beck 3 project work. There are clearly a lot of advantages in terms of its additional generation. It's part of demonstrating our environmental commitment and so on. But as I said in my opening remarks and as I've said to Jack Gibbons, who I know is talking to you later on a number of occasions, we have to balance cost and benefit for consumers. The reality is that on Beck 3 at the moment, although we revisit the project several times a year—I've been with the company a year and in that time we've looked at it three times at board level to my certain knowledge—the economics are very marginal. In fact, they're not attractive at the moment. It's a very high-cost project. It's over half a billion dollars. It has an extremely long payback and it depends crucially on the availability of the extra water to actually fill up that extra capacity. As I mentioned, we're having the lowest water flows at the moment in Ontario that we've had for 35 years. All the uncertainty around future water flows sits around that project. So you're building a lot of extra capacity and whether or not you can make constructive use of that capacity depends on how much water there is. We can't see a way of making it work.

Having said that, we're working with a—

**The Chair:** I may have to move on to the next caucus. I know a detailed response is coming. We appreciate that.

**Mrs Marie Bountrogianni (Hamilton Mountain):** Welcome and thank you for your presentation. Ms Churley responded to your comments on the relative costs of traditional and non-traditional energy sources. There have been independent studies, though, that have been done, as I know you're aware, of the enormous health costs to the implications of some of the traditional energy sources, asthma being a big one. I've said it a couple of times in this committee and I'll keep saying it: I come from Hamilton, which has the highest adult asthma rate in the world, so there are some very real costs associated there. Maybe you could comment briefly now, but if possible, make available to the committee summaries or status quo of the research and development projects that you are involved in. I guess one of the questions that you could address now is, are there any



Canadian universities involved with you on those projects?

**Mr Graham Brown:** I'll ask Helen Howes to comment on that.

**Mrs Bountrogianni:** Congratulations. You're the first woman presenter since we started.

**Ms Helen Howes:** And I fear, having looked at the list, one of the few.

I'll give you a more detailed list. We're involved with a number of universities with respect to looking at the air impacts of our emissions. University of Waterloo is one in particular. We're involved with Trent and I think an institute—I forget its name but I'll give it to you later—about impacts of environmental discharges on wetlands and aquatic environments. We are trying to maximize our use of university research institutes. So there is a fair amount of work and I can give you more detail.

**Mr Parsons:** Good morning. Electricity is an international commodity that crosses the border and crosses the other provinces. You're producing electricity in a green manner that obviously costs you more. What assurance do you have that you can sell it? What is to prevent a coal-fired plant in Michigan from underbidding your green power costs so that we have green power capability but no sale? Everybody obviously wants the lowest cost. How can you guarantee you can sell it?

**Mr Graham Brown:** Green power isn't bid into the power pool the independent market operator is responsible for operating. It generates when it generates, and it will be supplied into the grid at the prices that have been agreed. Graham may want to elaborate on that.

**Mr Graham L. Brown:** Generally speaking, the sale of green power down to consumer level will be done through a financial market, as in that you are supporting the production of power from that source and you need to distinguish between the physical energy component and the actual generation source. The IMO deals with the market on energy, to ensure that there is sufficient energy flow around the province. What we are doing is setting up a process where we can sell to our industrial customers and to retailers to allow them the opportunity to pass on the benefits for green power.

**The Chair:** Thank you very much. We appreciate your coming before us. Your time is up. Excellent information.

1030

#### SUNOCO INC

**The Chair:** We'll move on to our next presenter, who is Tom Ryley, executive vice-president for Sunoco. Thanks for coming. Welcome. Please state your name for the sake of Hansard. There's a total of 20 minutes to be divided between your speech and later the three caucuses for questions.

**Mr Tom Ryley:** My name is Tom Ryley. I am executive vice-president of Suncor Energy and Sunoco. Thank you for the opportunity to speak to the committee.

I'll make my best efforts to be fairly brief to leave some time for questions.

Suncor is one of the largest integrated energy companies in Canada, but one that in addition to trying to meet the current needs of our customers is quite focused on trying to look into the future. We do see ourselves as a sustainable energy company. We've undertaken a number of initiatives, perhaps the most significant of which is that we've committed—we did this several years ago—\$100 million of investment over a five-year period in alternative and renewable energy.

We have been a gold medal winner in the federal government's voluntary challenge for greenhouse gas emissions reduction. We are an active participant in the whole CARE initiative around alternative and renewable energy, and in terms of actual spending we're just completing a wind farm, albeit it's in the province of Saskatchewan. So, anyway, we are active and underway.

I actually didn't come to talk to you about those initiatives. I came to talk to you about ethanol, ethanol blended into gasoline and ethanol blended into diesel fuel. This is something that Sunoco—and Sunoco is a 100% subsidiary of Suncor Energy—is very active in. We started in 1992 and, as of 1997, 100% of the gasoline that we sell in Ontario under the Sunoco brand is blended with ethanol up to about 10%. Also, we are a 50% owner of the Co-Op fuel network across Ontario and also the Pioneer Petroleums network. In total, we supply about 20% of the retail gasoline outlets in Ontario. In all of those sites we are supplying all of the gasoline as ethanol-blended gasoline.

Why is that important? Well, ethanol blended into gasoline, if done properly, and there's a bit of science to it, makes excellent gasoline. In particular, in terms of the environmental benefits, it reduces emissions of carbon monoxide by approximately 30%. There is no sulphur content to the ethanol element of the gasoline blend, and we have managed to reduce greenhouse gas emissions associated with gasoline use by about 100,000 tonnes a year through this ethanol-blending program to this point. So those are very significant measures of performance.

I have to honestly tell you that it's not cheap to do this, but you do help support it. The cost of making ethanol from corn—the ethanol that we use is all made from corn and it's primarily manufactured here in Ontario. We are the largest purchaser and blender of ethanol into gasoline in Ontario. I was just looking at some numbers; they're in your package. In the year 2000, the average price of ethanol was 62 cents a litre. That's before the tax. The average wholesale price of gasoline, and we're talking about the wholesale price without the taxes, was only about 35 cents. The value of the ethanol blended into the gasoline is no higher than the gasoline itself. However, that's where the tax break that the federal and provincial governments have extended to ethanol is very important, because that bridges the gap between the cost of the ethanol and the value of the gasoline, and it bridges it quite effectively.

The one thing I do want to assure you is that 100% of the benefit of that flows back to the manufacturer of the ethanol. Without disclosing the exact arrangements of our ethanol purchasing, it's set up so the tax rate goes back directly to the ethanol producer. It doesn't come to the oil company but it does enable us to buy the ethanol cost competitively with other forms of gasoline.

We've been extremely happy with our whole ethanol blend program. We've had no issues in terms of fuel quality and gradually this is coming to be a positive in the eyes of consumers. When we first started, believe it or not, they felt that green energy was not quite as good as conventional energy and we've had a bit of an uphill climb here. I think we're getting over the hump of that and consumers are starting to perceive it to be a superior fuel product.

What I'd like to speak to you about most importantly is now extending that incentive to diesel fuel. What we would like to do is to start blending ethanol into diesel fuel. It would be the same type of thing where you'd be able to blend it up to about 10%. We would get significant benefits in terms of reduced nitrous oxides and also in terms of lower greenhouse gas equivalents associated with diesel fuel combustion. It would be a great thing to do for urban transit fleets. For example, we supply all the diesel fuel for the Toronto Transit Commission here in Toronto and we could do a program with them which would be a direct benefit in the urban environment, and similarly with diesel fuel for urban trucking fleets.

What that requires is for the province and the federal government to extend the current tax rebate on ethanol blended in the gasoline to diesel fuel. I would like to recommend that to you as a specific action you could recommend that would have very tangible environmental benefits in the province.

Mr Chairman, that is the extent of my formal comments. I'd be happy to take questions.

**The Chair:** Thank you very much. We have about two and a half to three minutes per caucus, starting with the government side.

**Mr Jerry J. Ouellette (Oshawa):** Thank you very much for your presentation.

First of all, I should say that your company, as I travel through the north on discussions like this, is the fuel of choice for a lot of the presenters in the various committees, whether it's Manitoulin Island or other aspects of northern Ontario. I should pass that on to you.

**Mr Ryley:** Thank you very much.

**Mr Ouellette:** When you talked about the use of ethanol you mentioned the tax rate, but how does that compare to the other oxidizing agents such as MMT or the MTBE? When you use that are you replacing ethanol with that or are you still using the other components as well?

**Mr Ryley:** We do not use MTBE, which is the directly comparable oxygenate manufactured from conventional fuels. We only use ethanol.

**Mr Ouellette:** Had you used it in the past or not?

**Mr Ryley:** Perhaps very occasionally in the past, but in the past 10 years we have never used MTBE as a blending component.

**Mr Ouellette:** Why 10%?

**Mr Ryley:** Gasoline is actually a fairly complex chemical composition. There are basically physical limits of approximately 10% to meet the various CGSB specifications for gasoline that restrict it to 10%.

**Mr Ouellette:** Yet some of the manufacturers are producing the E85, so an 85%—

**Mr Ryley:** You're absolutely right. If you go to the opposite end of the spectrum, you could market an 85% or even up to 100%. It is possible to do that. It's that whole area in between where you can't actually meet all the specifications.

**Mr Ouellette:** The other area is something I had pushed in our Legislature that the feds came through with, which was the reduction of sulphur content. I know your company is listed as the most environmentally friendly in that aspect but how do you feel? As an industry, will they will be able to comply with the federal regulations across Canada for the reduction in sulphur parts per million?

**Mr Ryley:** Absolutely. The requirements are that we be at 30 parts per million of sulphur by January 2005, and we're underway with our investment to meet that. In the interim, we are the lowest average sulphur gasoline in Ontario at the moment.

**1040**

**Mr Ouellette:** How are you going to do it? Where is the investment taking place? It depends on the crude that you purchase, I know. I've done the research. I showed that in a lot of the crude, if it's Venezuelan crude, I believe, the sulphur content is considerably less, or the sweet crude, as it's called. How do you bring that into the manufacturing process and where is that investment taking place? Where are the refineries that are reducing the sulphur content for you, or is it just through the purchase of sweet crude?

**Mr Ryley:** The gasoline that we sell in Ontario is all manufactured at our refinery in Sarnia, Ontario. We are making a new investment in a gasoline desulphurization unit to accomplish that.

**Mr Ouellette:** What kind of cost is that?

**Mr Ryley:** It will cost us approximately \$50 million to build the new process unit.

**Mr James J. Bradley (St Catharines):** I have a question regarding the posting of the sulphur content in gasoline. I hear it's going to be on a Web site somewhere, which is nice for people who are into Web sites. I don't know how many people consult those before they head out to buy their gas, but would you be in favour of the posting at the pump of the sulphur content of gasoline being sold in Ontario?

**Mr Ryley:** There are difficulties associated with that, Mr Bradley, but we do post our sulphur on our Web site, sunoco.ca. By the way, you can also get the current price of gasoline at any Sunoco station in Ontario on that Web site.



**Mr Bradley:** The second, for consumers, is interesting. For the first, though, when people come to the pump is when they sometimes make those decisions. So what is the difficulty of posting it at the pump if you can post it on a Web site?

**Mr Ryley:** The difficulty is that the sulphur content in any particular batch of gasoline will vary. Gasoline is not manufactured to a specific sulphur specification. That's the complication. This is not a problem for us because we only sell gasoline in Ontario that we manufacture, but the difficulty for some of the other refiners is that they exchange gasoline and so they don't always know whose gasoline they're selling.

**Mr Bradley:** So you would have an advantage were you to do so. Why wouldn't you do it then of your own volition if you have that advantage?

**Mr Ryley:** We are very open in terms of the average sulphur content of our gasoline.

**Mr Bradley:** Which is reasonable.

I don't know if my other colleagues have a question. I have a second one regarding the Reid vapour pressure and whether it is your view, dealing with volatile organic compounds causing low-level smog problems in the summer, that the Reid vapour pressure requirements can be lowered further, and when.

**Mr Ryley:** Your technical knowledge is exceptional. Let me point out first of all, in terms of ethanol blend gasolines, that unlike the United States, we do not take advantage of a higher Reid vapour pressure for ethanol blend gasolines. We make a special low-volatility fuel to blend with the ethanol, so we meet the same RVP standards as all conventional gasolines, which is very important for environmental reasons. There are, again, some practical limitations in terms of fuel combustion for the further reduction of RVP in the summer.

**Mr Bradley:** The last question, if there's time for a last question, would relate to a problem California is encountering. California is now making a plea to the federal government of the United States, the EPA, to relax its requirements in terms of ethanol blending. It's all related to oxygen in there. Do you foresee that problem here in Ontario?

**Mr Ryley:** No. We have a world-scale ethanol plant in Chatham, Ontario. We buy 100% of the fuel ethanol production from that plant, and our whole rollout of ethanol blend gasolines was something that was very carefully developed so we wouldn't have that issue.

**Ms Churley:** Thank you for your presentation. Good morning. I just wanted to follow up on some of your recommendations. You say it's unlikely that alternative diesel product can be economically viable without some form of government assistance. I know you gave an example of a program similar to BC's. Can you talk about what the federal government should be doing and what the provincial government should be doing?

**Mr Ryley:** What we believe will work most effectively is a program similar to the rebate for the ethanol component of gasoline. Because ethanol is manufactured from corn, it's just a simple figuring out of the costs of

doing this. The cost of making the ethanol from corn is higher than the cost of making conventional gasoline or conventional diesel fuel. However, there are very substantial environmental benefits to blending ethanol in the fuel and very substantial benefits in the farm community as well, which is why the province saw fit to create the ethanol incentive for gasoline. If the province were to rebate the approximately 14-cent-per-litre diesel tax and the federal government were to rebate the road tax on diesel for the ethanol component as well, we believe that would bridge the gap sufficiently that we could economically produce a diesel fuel blended with ethanol and get the commensurate economic and farm benefits in Ontario.

**Ms Churley:** Are you in the process of having these discussions with the Minister of Finance in Ontario?

**Mr Ryley:** Yes, we are.

**Ms Churley:** Where are you at in terms of process? Is there any way this committee could recommend, help, at this point?

**Mr Ryley:** Yes, that's actually what I would recommend to you, that if you were to make a specific recommendation to extend the incentive to diesel fuel, we think that would be extremely helpful in terms of progressing this.

**The Chair:** Thank you for your presentation. We've heard about alcohol, particularly ethyl alcohol, being added, and your company's name has come up before.

**Mr Ryley:** Thank you very much. It has been a long journey.

#### ONTARIO CLEAN AIR ALLIANCE

**The Chair:** Our next presenter is Jack Gibbons, chair of the Ontario Clean Air Alliance. Please come forward and state your name for the sake of Hansard. You have a total of 20 minutes for your presentation, and whatever is left over in time from your presentation will be divided between the three caucuses evenly for questions.

**Mr Jack Gibbons:** Thank you, Mr Galt and members of the committee, for the opportunity to speak to you today. I am Jack Gibbons, the chair of the Ontario Clean Air Alliance. The Ontario Clean Air Alliance is a coalition of 78 organizations, and our 78 member organizations represent over six million Ontarians.

According to the Ontario Medical Association, air pollution in Ontario is a public health crisis. According to an Ontario Medical Association report, every year air pollution costs the Ontario economy \$9.9 billion in health care and other costs, and it also kills 1,900 people a year.

Ontario Power Generation and its five dirty coal-fired power plants are a major contributor to Ontario's air pollution problem. Just to give you a few examples to put it in perspective, Ontario Power's coal plants produce as much pollution as 6.2 million cars. Ontario Power's coal plants produce 23% of our sulphur dioxide emissions in Ontario. Sulphur dioxide causes acid rain and smog. Ontario Power's coal plants produce 23% of our mercury emissions. Mercury is a very toxic nerve toxin. OPG's

coal plants produce about 20% of Ontario's greenhouse gas emissions that contribute to global warming and climate change, and OPG's coal plants produce about 14% of our nitrogen oxide emissions that contribute to smog and acid rain.

Fortunately, we can phase out these dirty coal-fired power plants at a very low cost by promoting energy conservation, by switching to renewable energy and by converting the dirty coal plants to cleaner-burning natural gas.

Energy conservation is the best option to phase out the coal plants because with energy conservation we can achieve three benefits all at once: energy conservation reduces customers' bills, energy conservation reduces pollution because it reduces the need for coal-fired power plants, and energy conservation can make Ontario's industry more competitive in world markets and help create jobs.

Enbridge Consumers Gas has developed the best utility-sponsored energy conservation programs in Canada. In 1999, Enbridge's energy conservation programs reduced their customers' bills by \$57 million. Why has Enbridge developed the best energy conservation programs in Canada? The answer is very simple: the Ontario Energy Board, under the new rules brought in by the Harris government, has adopted market mechanisms to harness market forces to incent Enbridge Consumers Gas to reduce customers' bills. The OEB has adopted a shared savings mechanism that links Enbridge's profits to their success at reducing their customers' bills by making their customers more energy-efficient. As a result of reducing their customers' bills by \$57 million, the Ontario Energy Board awarded Enbridge a \$4.8-million profit bonus, so basically 8% of the bill savings went to the shareholders, 92% to the customers. That's a win-win solution. It reduces customers' bills, reduces pollution, makes Ontario's economy more competitive and increases the utility's profits.

**1050**

Now, if Hydro One and all of Ontario's electric utilities, like Toronto Hydro and Hamilton Hydro, were also to aggressively promote energy conservation, we could achieve very large bill savings and very large reductions in pollution because we'd be phasing out the dirty coal plants.

Unfortunately, the Ontario Energy Board has adopted rules which financially penalize the electric distribution utilities when they promote conservation. That's just economically and environmentally irrational, and it's unfair. So we would urge this committee to recommend to that Ontario Energy Board that they adopt market mechanisms which will link the electric utilities' profits to their success at reducing their customers' bills by promoting energy efficiency. If you do that, I think we will see very large reductions in bills and reductions in coal-fired pollution.

There are also a number of other good options we could pursue to phase out the coal-fired power plants. As Mr Gilchrist alluded to earlier, there's the Sir Adam Beck

generating station at Niagara Falls. That is a 100% pollution-free form of electricity. That is the roots of Ontario power generation; that is what made Ontario Hydro great. Now, the output of Sir Adam Beck could be increased by an additional 12% to 15% by building another tunnel under the city of Niagara Falls, and that would produce very clean electricity and at a very low cost.

Ontario Power Generation has given to us their estimates of their costs of expanding Sir Adam Beck, of building Beck 3, and according to the information that they provided us, Beck 3 could be developed for a cost of about 2.7 cents per kilowatt hour. That is very low cost electricity. To put 2.7 cents in perspective for you, according to the Ontario Energy Board's forecast, when the market opens to competition in 2002, the average wholesale price of electricity generation will be 4.3 cents; Beck 3 is 2.7 cents. Also to put it in perspective, the wind turbines that Mr Brown told you about today, they're forecasting that electricity will cost eight to 12 cents a kilowatt hour; Beck 3, 2.7 cents. This is a very low cost source of electricity. It's the lowest clean-power option available, and Ontario Power should be directed to build Beck 3 as soon as possible. There's just no excuse not to move forward on that option.

Other options: there is the Lakeview coal-fired power plant in Mississauga. That plant could be converted to high-efficiency, combined-cycle turbines. That would reduce pollution dramatically. The government is proposing to allow Ontario Power Generation, or the company it sells it to, to use its old inefficient coal boilers to burn natural gas. That leads to a wasteful use of a precious natural resource and excess pollution. The government should direct Lakeview to use high-efficiency, combined-cycle natural gas turbines.

Another option: Ontario Power Generation exports coal-fired electricity to the United States on smog alert days; there's no excuse for this. The government of Ontario should tell Ontario Power Generation, "Do not export any coal-fired electricity to the United States on smog alert days in Ontario."

Finally, the government could tell Ontario Power Generation to convert the Nanticoke generating station from dirty coal to cleaner-burning natural gas. Nanticoke is the largest air polluter in Canada. We can clean it up by one single action: convert it to cleaner-burning natural gas.

Thank you. Those are my initial comments, and I'll be glad to answer your questions.

**The Vice-Chair (Mrs Bountrogianni):** Thank you very much, Mr Gibbons. That leaves us about four minutes per group, and we'll start with the official opposition.

**Mr Bradley:** Thank you very much. The music to my ears is your extolling the virtues of Beck. I've been a proponent of that not only parochially but because I have felt it's a good source of power for a number of years and have felt that Ontario Power Generation, or Ontario Hydro in those days, was much more interested in



building nuclear generating stations than they were in pursuing Beck with any degree of interest. So it's interesting, the facts that you have provided to us in that regard.

Do you have any insight into why no other gas company besides Enbridge Consumers has embarked upon the kind of program that Consumers has in terms of conservation?

**Mr Gibbons:** Union Gas has also embarked on energy conservation programs, but unfortunately the Ontario Energy Board has not tied Union Gas's profits to their success at reducing their customers' bills by promoting energy conservation. Union Gas doesn't have the same financial incentive, their shareholder doesn't have the same financial incentive, to aggressively promote energy conservation, so they haven't developed as aggressive a program as Enbridge has.

**Mr Bradley:** There are many who pooh-pooh the possibility of energy conservation having a vital role to play; they always say, "Give me some examples of what that might be." Can you give the committee some examples of what would be good energy conservation initiatives in this province by everyone?

**Mr Gibbons:** There are all kinds of things. One example is what Enbridge has done. They have gone into the sites of their large industrial customers, done audits and identified cost-effective energy savings. They've identified them for customers, and then they have connected the customer up with a reputable engineering consulting firm or energy service firm that can actually implement them, and they've told the banks this is a good investment so the banks are willing to lend the money to the company to make the investment. Enbridge has played a very important role in identifying options and facilitating their actual implementation.

**Mr Parsons:** It has become apparent to me that for electricity that's produced by water or wind, we can relatively easily cost out what its real cost is. Have you got a handle—I sense it's pretty complex—on what coal-fired electricity really costs if we look at the downstream costs? What does nuclear really cost once you consider the health hazards, the effect on value of surrounding lands etc? Do you have those numbers?

**Mr Gibbons:** There certainly are cost numbers and there have been reports in the paper in the last couple of days about new studies in the United States that have estimated the cost, and they have found the health and environmental costs are double the financial price of the dirty fuels like coal. These studies, of course, are always controversial. The one that's closest to Ontario is the Ontario Medical Association, which says that air pollution costs us in Ontario \$9.9 billion a year at least, as well as killing 1,900 people. Of course, that air pollution isn't just from Ontario Power Generation, but Ontario Power Generation is the single-largest source.

We know the costs are very high, but the important thing is that we know there are alternatives to dirty coal that we can implement at a very low cost, so no matter what you think the health costs are, the costs of the

cleaner alternatives are a real bargain. For example, we can convert the Nanticoke station, which is Canada's number one air polluter, to natural gas for a cost of \$1.69 to \$2.99 a month for the typical residential homeowner. That's a very low cost compared to the \$9.9-billion total health care cost. The point is that these options to phase out coal are really so low-cost, we should be pursuing them very aggressively now.

**Ms Churley:** Thank you, Mr Gibbons, for your presentation today. I just want to let you know that energy conservation and efficiency wasn't in the initial mandate as we have tried to determine what is alternative, but I did suggest to the committee that we add it, and it's now part of the mandate as well, to look at alternatives such as conservation and efficiency. So we'll be doing that, as well as looking at other alternative forms of power.

I wanted to clarify with you the issue around OPG entering into contracts and firing up the coal plants on smog days, because I have been in a running battle in the Legislature with Minister Wilson on this. He has said on a couple of occasions that they don't do it, although there's a letter I saw that you wrote to OPG and it seemed the answer to you was suggesting that they do do it, you're saying here in your presentation today. I've gotten different answers from OPG and the minister, and I'm just trying to clarify exactly what is going on during those smog days. Are they firing up the coal plants, as you have suggested, and how much more pollution do you think we're getting as a result of that on bad air days?

**Mr Gibbons:** The situation of what OPG has been doing has been a bit unclear. There have been conflicting statements. I have spoken to Mr Brown, who was here earlier today, and I've got letters from him. My understanding of their policy now is that on that very specific smog alert day they will not enter into a new electricity export arrangement. But what OPG has done is signed these export contracts which they claim oblige them to make coal-fired electricity exports on smog alert days, and they are continuing to comply with those contracts.

**1100**

As a result of those contracts, we have calculated on a typical smog alert day in Ontario this summer, OPG's coal-fired electricity exports were equivalent to putting an extra 620,000 cars on the road in Ontario. So it's having a significant negative impact. On smog alert days people are asked to drive less, but what OPG is doing is, in effect, putting 620,000 extra cars on the road.

Clearly, OPG should be told not to enter into any new contracts that require it to export coal-fired electricity to the US on smog alert days. I've asked OPG for the details of those contracts—who they are with, what their term is, when they were signed, what is the financial penalty if they don't make an export on a smog alert day. Mr Brown has refused to give me that information, but maybe he will give it to you and the committee.

**Ms Churley:** Madam Chair, I would recommend that the committee ask for that information. I think it's shocking that that's happening on smog days.

Could I ask you quickly about Adam Beck? I think in general the committee agrees with you on that. I'm concerned about the nuclear option here. I must tell you that's one of the things I've asked to have taken out of our mandate as an alternative; that and garbage incineration, energy from garbage, because I think that's old technology and we're moving on. This is an important issue you raise today. Why do you think OPG is not moving forward with Adam Beck?

**Mr Gibbons:** It's just impossible to find a rational explanation. Adam Beck is their roots. Hydro power is their roots. Mr Brown claimed today that it's very expensive, but given the information his company has provided to me, it's got about a \$500-million to \$600-million capital cost. But you've got to realize that can be amortized over the economic life of Beck 3, which will be at least 50 years. When you do that, the cost comes out to 2.7 cents a kilowatt hour. That is the cheapest possible form of electricity you can find in Ontario.

Why they haven't done it just boggles the mind. He promised to give you his analysis. I know they went through an environmental assessment hearing process. They got environmental assessment approval for it. You should look at those documents. Presumably those documents will show that it's a low-cost option financially. The city of Niagara Falls is begging them to pursue it. Why they won't do it, I can't understand.

**The Vice-Chair:** The requests by Ms Churley have been noted by the clerk.

**Mr O'Toole:** Thank you very much, Mr Gibbons, for your presentation this morning. I would certainly like to make it clear from the government side that I think the intent or mandate of this committee is to look at alternative fuels. My definition of that includes conservation and controlling the demand load and peak load; not just building more generation capacity all the time but extensively managing the generation capacity we have.

Without being political, I think the government has responded, certainly with the Lennox plant being co-generation, at a considerable cost, and commitments by the minister to try and deal with peak demand. We know the assets that we have all invested, as taxpayers, are basically in generation in the nuclear and traditional hydro power. Then you're dealing with the whole load of who pays for the assets that get nullified and who pays for it across the whole grid, because time and knowledge change many things. We as taxpayers own that asset and are charged with managing it, not emotionally but rationally and with the public interest in mind, that being safety and health. So I'm not ignoring what you're saying and I'm not opposed to what you're saying. You've made it clear to this committee that the Beck capacity is there, and certainly I would support that.

I like one of the options being brought forward, which is the energy labelling option, to empower the consumer, the ultimate person who makes the choice about clean air, clean environment and clean water, to speak with their cheque book, with their voice. Could you comment? When I'm purchasing power on my bill, I can envision

checking the six-cent kilowatt, which is fewer deaths, the eight cents, which is more deaths. Put it right there for the consumer, and I'd like to see the poll afterwards. I really am interested. I think we'd be shocked that people really will vote with their hand. I really do believe that, if you empower them, and in that we will be educating them.

In fact, the monopoly position we've seen—I think the competition is actually good so that there are more generators. The wind and solar people we've heard have made a very cogent and confirming argument for more attention to wind. We all have these little symbols in front of us that 10 years ago we'd have laughed at.

**The Vice-Chair:** Mr O'Toole, you've taken the three minutes to ask the question. If you want an answer, the guest will have about 15 seconds.

**Mr O'Toole:** On the labelling, if I could, I would say, Mr Gibbons, that would be the most appropriate.

**Mr Gibbons:** I agree with you. Energy labelling is very important. I think it can have a very positive impact. In fact, we have created a new Web site called [electricitychoices.org](http://electricitychoices.org) to help residential consumers make an environmentally and economically responsible electricity decision when the competitive market opens. For example, we have listed all the residential suppliers in Ontario, with the price of their options and the environmental characteristics, where the suppliers will reveal that to us. Some suppliers have refused to tell us their environmental characteristics so we just have to put that as undisclosed. Compulsory labelling that would force all the suppliers to reveal the sources of their power would be very helpful.

**The Vice-Chair:** Thank you very much for your very informative presentation, and we look forward to the information that was asked for by Ms Churley.

**Ms Churley:** On a point of order, Madam Chair: Can I just have a clarification? As I understand it, Mr Brown of OPG said that he would supply the committee with the analysis of Adam Beck. That's correct. So we won't have to make a motion that that be brought forward.

**The Vice-Chair:** No.

**Ms Churley:** I've asked as well—I just want clarification on this—for the details of the contracts that OPG made about exporting power. Do I need to make a motion? OK, it's just noted. Thank you.

#### TORONTO RENEWABLE ENERGY CO-OPERATIVE

**The Vice-Chair:** The next presenters, please, Mr Young and Mr Poch, from the Toronto Renewable Energy Co-operative. Welcome. Would you please state your names.

**Mr David Poch:** While Mr Young is setting up, I'll introduce us. With me is Bryan Young, who is the executive director of Toronto Renewable Energy Co-operative. I'm David Poch, counsel to TREC. You'll be hearing from me again later in my capacity as counsel to the Green Energy Coalition, at which time I will be



addressing the committee particularly about conservation.

TREC's presentation today will focus primarily on matters pertaining to renewable power generation.

**Mr Bryan Young:** Thank you very much for this opportunity. I'm very gratified to hear that this initiative is taking place. I think we all are. As David said, he is our representative in legal matters pertaining to energy policy. I'm the general manager of the Toronto Renewable Energy Co-operative.

TREC is a member of the Ontario Sustainable Energy Association, which has member groups across Ontario now—in North Bay, Barrie and Kingston, among others—that are seeking to replicate the Toronto Renewable Energy Co-op's community-based green power investment model. TREC, with Toronto Hydro Energy Services, is developing a two-megawatt wind power plant which will be built on the Toronto waterfront next year. This is a picture of what you will be passing by, close to Lakeshore Boulevard, hopefully next spring. We certainly look forward to taking you folks on a tour as part of your deliberations.

Our comments here today come from TREC's direct experience with the approvals process and policy environment in Ontario as experienced through the development of this project over the past two years. In summary, we'd like to bring to your attention the following issues:

First—and I think we echo the Independent Power Producers' Society of Ontario here—the need for a renewable portfolio standard, ie, a minimum requirement for renewable energy.

1110

Second, we'd like to bring to your attention flaws in the proposed environmental assessment rules for electrical generation projects.

Third, we'd like to point out flaws in market design with respect to small-scale renewable generation.

Fourth, I'd like to ask David to discuss a particular problem that the OEB has created in its role as regulator with respect to transmission rates.

Fifth, we'd like to recommend the use of the debt reduction charge as a policy tool for the encouragement of alternative energy deployment.

Sixth, we'd like to propose policy support to consumers to encourage development of small-scale renewables in the form of a provincial net-metering policy.

Finally, seventh, we'd like to demonstrate our support for the consideration of energy efficiency and conservation because of its demonstrable economic benefits to the Ontario economy. However, I know this item will be certainly adequately addressed in the deputation by the Green Energy Coalition this afternoon.

Before getting into the discussion and recommendations pertaining to the specifics, let's look at Denmark today. The highest GDP driver in Denmark is not fish or cell phones; it's actually wind turbines and the services provided to get those things up. Denmark has an annual turnover of US\$1.5 billion in wind turbines, their com-

ponents and related services. Worldwide, of course, that industry has grown in excess of 25% every year for the past 10 years. Denmark, and you may have heard this already in the deliberations, already meets 15% of its own electrical needs through wind, so it's interesting contrasting that to OPG's remarks about wind being a supplemental and how it's impossible that it could be anything more than that, with the goal Denmark has of meeting 50% of their needs by 2030.

Small-scale generation has been the key to Denmark's economic success here, with a full 80% of their turbines owned by individuals or investment co-ops analogous to our own, TREC. And these are no small potatoes in terms of employment, with the wind industry accounting for some 12,000 jobs in a country, Denmark, of just a little over three million. Ontario too, of course, with the right policy signals, could enjoy these fruits as well.

The US, by contrast to Canada, has 20 times the amount of installed wind power capacity. Quebec has over 100 megawatts of wind power, much of it at a plant that is quite wonderful to visit up in the Gaspé, while Ontario is very far behind with three megawatts, 1.8 of those added on very recently with the installation of Pickering.

It must be emphasized that in all jurisdictions where renewables are succeeding, positive policy is fundamental, with government encouraging the manufacture and deployment of wind power and other renewables. This US government document, which we'll certainly hand over to the clerk, documents, for example, the myriad policy initiatives that exist in US federal and state jurisdictions to support renewable energy. Every country in Europe no doubt would drown your desks in the number of policy initiatives represented on paper that help support renewable energy in that jurisdiction. Ontario frankly, unfortunately, has become an anomaly, and I think everyone here would like to see that change.

Let's talk about the renewable portfolio standard. It's important to note that in terms of existing policy in Canada, first of all, there is only one specific alternative fuel policy in Canada at the federal level, and that's the Canadian renewable and conservation expense. It's not been successful, however, largely because it's overly restrictive. By contrast, the US, as I said, has hundreds of initiatives, including the RPS in many jurisdictions, as you can see on this slide. One of the best ways to give alternative or renewable fuels a leg up in the marketplace is through the RPS. This policy support would set a minimum per-cent that a retailer or large user would have to purchase or generate on an annual basis.

The advantages of this policy are that it, first, guarantees that policy goals are met because of a legislated requirement; second, encourages economic development without government subsidy; third, is flexible in that the per-cent requirement can be revisited from time to time; and lastly, at least for my points, uses the market to get the best bang for the buck. I think David had something to add in terms of the advantages of the RPS. You can't remember?

**Mr Poch:** I was just going to actually refer to a comment that OPG made before you this morning where they were saying that if you're looking at any kind of standards or encouragement for renewables, they cautioned you to be careful not to impose obligations on domestic producers that aren't on foreign suppliers and put the domestic producers at a competitive disadvantage.

I just wanted to assure you there's no reason in law you could not have a renewable portfolio standard that applied to everybody selling into the Ontario grid. Therefore, an out-of-province supplier elsewhere in Canada or in the States would similarly have to show that they have either blended in a requisite amount of renewable power or have contracted to have that produced in Ontario by another producer and provided to the grid. So there would be no competitive disadvantage.

**Mr Young:** Thanks, David. Because of the advantages of this policy instrument, certainly in terms of its fit in terms of market forces, we advocate at TREC a 10% by 2010 and a 20% by 2020 policy for a renewable portfolio standard in this jurisdiction.

Turning now to the need for fair environmental assessment rules, and this is certainly something we've experienced in our project through its development, the Ontario government's EA guidelines certainly need to be examined if we're really to get serious about sending the right signals to investors in wind energy. The threshold trigger for an EA screening for natural gas generator plants, for instance, is at or above five megawatts, while in contrast it's set for two or more megawatts for wind power. We don't understand the discrepancy, and that's despite the fact that wind creates no harmful emissions.

We perceive that there's a lack of experience in this jurisdiction, and certainly among the public and among some policy-makers, with this technology, despite the fact that we're blessed with a really terrific resource here, particularly along the lakes. Quite frankly, if the resource wasn't that good, we wouldn't be building the kind of projects we're contemplating building and we'd be concentrating on other technologies.

We'd like to ask the committee to consult with experts on the technology and recommend to the government that the threshold be increased to beyond that of gas generators, which do aggravate climate change, smog and acid rain.

I want to turn now to the need for a market that makes room for the small players. A case in point is looking at the approvals process that our small project has faced relative to OPG's project at Pickering. They actually only had to get one permit that I'm aware of, from Atomic Energy of Canada Ltd. We, however, had a very long process to go through, which certainly could stand some streamlining.

**Mr Bradley:** I think that's called red tape.

**Mr Young:** Red tape, yes. I believe there's a commission for that.

The market has been designed and somewhat understandably been built for large players, and we understand the rationale for that. It's a perception in terms of how

power has been generated in the past. Just as we want to ensure a positive policy environment for the small shopkeeper who contributes substantially to Ontario's employment and prosperity, we think the new electricity sector must be made to ensure that the small producer can thrive.

I'd like to ask David to outline a very good example of what we mean on that score.

**Mr Poch:** The example we'd like to stress is a problem that's arisen at the OEB with respect to embedded generation and transmission tariffs.

The committee has asked, I've heard earlier, questions about the competing costs of these technologies. Ballpark, conventional fuels might be selling for perhaps four cents a kilowatt hour into the grid, not including the wires charges that get put on top of that. Wind these days, depending on the wind regime and the situation, might be seven cents, nine cents, 10 cents a kilowatt hour. There's quite a gap there.

One of the key ways you can close that gap is if you can put wind, like TREC is doing, inside the city gate, inside the distribution utility, and hopefully avoid paying the transmission tariff for the main high-voltage lines outside the cities. You can shave a penny or two pennies, perhaps another penny if we weren't paying the debt retirement charge, or seven tenths of a cent, because you're not using those lines.

The OEB held a long hearing on transmission tariffs, well attended, quite a process, and decided that embedded generators, as they're called, generators within a distribution utility area providing power to that area, would get charged, if they're small, nothing for transmission; if they're larger they would attract roughly half the charges. They would attract the connection charge and not the network charge, because they still do rely on that transmission system for some backup services and so on. We were all quite pleased. That would help close this gap somewhat.

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However, when the OEB went to operationalize that decision, in its handbook to the distribution utilities telling them how it should take the charges received from on high from the transmission company and from the IMO and pass them along to customers, they did not follow through. They said that there will be a savings on transmission because of embedded generation, but it won't go to the benefit of that generator or to that generator's customers within the distribution area, or, in the case of TREC, to its members within the distribution area. It will just be enjoyed by the distribution utility to be passed along to all customers. The economic signal is lost. There is now no economic signal, no way that we have a kind of user-pay principle being respected, and now we're back to the full gap, the full spread in cost.

Here's an example where the nature of decentralized technologies should give them a leg up, should help close the cost gap, because you can avoid using a transmission system and avoid pressure to expand the transmission system. You can avoid the expensive transformation



from high voltage to distribution voltages as well, and you can avoid all those line losses. But there's no way, the way the OEB is operating right now, that the economic players can actually see that benefit.

So there's an example where, if this committee wanted to give direction, it could give direction to the OEB to ensure that small, decentralized producers see the full benefits of the costs that the system avoids due to their presence.

**Mr Young:** Yet another way we think there could be assistance for small, alternative fuel players in the market is by exempting them, as David alluded to, from a payment of the debt reduction charge. The Ministry of Finance, as I'm sure most of you know, is currently wrapping up public consultations on the design of the debt reduction charge, a tax of seven cents on each kilowatt hour to pay for the debts of nuclear power. Our first objection, of course, to the DRC is the fact that it even applies to self-generation at all. To use an analogy, it's kind of like putting a tax on the apples I pick in my backyard. However, we understand that there may be a concern that if larger consumers opt out of the system, there would be an increasingly small pool of folks who would be there left holding the bag, essentially.

With that in mind, we think that consistent with the goals in Bill 35—

*Interjection.*

**Mr Young:** Seven tenths of a cent, yes. With the goals of Bill 35 to protect the environment while creating competition, a good incentive would be to exempt renewables from the payment on the DRC for embedded generation. This exemption would come at very little cost to the government and could even have within it a kind of kilowatt hour capacity ceiling and a time ceiling as well. It would be a very modest measure in comparison to the production tax credit that you've heard about, at 1.4 cents, that has been renewed very recently by the Bush administration.

Still another cost-effective way to promote renewables, at least on a smaller scale, is through net metering for consumers. This policy support is intended to provide a way for the real keeners in this province, some of the most vocal folks in renewable energy, to feel that the government is really interested in doing something about promoting alternative energy. The best tool in this regard is net metering. Ontario and Toronto Hydro were both local pioneers in this policy, a policy that has since been adopted in 34 states, through legislation, I might add.

Typically, this arrangement allows the homeowner or small-scale business to put PVs or a small wind generator in their backyard and allow their meter to run backwards, essentially, at times when there's an excess being produced. We think this measure would be very helpful in sending the right signals, certainly to consumers who choose to produce at very little cost to the government, that alternative energy is welcome in the province.

In summary, members of the committee, Ontario is surrounded by jurisdictions that have already caught the alternative fuels train. There is a tremendous amount that

you can do to satisfy public demand for tighter emissions controls and environmental standards while not burdening the public purse. We certainly look forward to providing ongoing input to the committee if it's welcome and wish you the best of luck in your work.

**The Chair:** Thank you very much for your presentation. We're almost out of time, with hardly a minute per caucus left.

**Ms Churley:** I'll ask my question quickly; same question as I asked OPG. Nuclear is still being subsidized; fossil fuel energy is being subsidized. What's your comment on that vis-à-vis your desire to have some policy changes and incentives to get green power on the grid?

**Ms Young:** You know, Ms Churley, there are a lot of initiatives we discussed here that in some ways aren't subsidies. The RPS, for instance, is a very powerful tool that we could turn to to help renewable energy. As I said, environmental assessment rules are something we can look at as well. Direct subsidies are another way, much as nuclear has been directly subsidized and will be subsidized for a long time. That is an option, but there are a host of measures that we could implement in this province that would be something other than subsidy.

**Mr Gilchrist:** Very quickly, because we only have a few seconds. I'm intrigued and we're seeing some common suggestions coming forward. I certainly agree with net metering and ways of encouraging a level playing field.

I'm a little curious. You don't mention in your presentation the actual structure of TREC. We are hearing that local generation is an important thing. In terms of a model, I'm wondering if you'd be prepared to share with us details of who you are, how you're funded, how long you've been in existence, that sort of thing.

**Mr Young:** Sure. We'd be delighted to send you some materials. As part of our broader provincial task, we're setting about actually talking to communities about the model. It's a co-operative in its essence. It gives the individual investors basically one vote per member and they directly invest. It's a way to close that gap between the consumer and the producer by getting consumers directly participating, not simply by pulling out their wallets for a commodity but pulling out their wallets to actually build bricks and mortar—in this case steel and fibreglass. We've stolen it blind; we're not terribly original. Denmark has been very important with their co-op movement in terms of actually getting the industry going in that country.

**Mr Gilchrist:** Perhaps you could send that.

**Mr Young:** Certainly.

**Mr Parsons:** I'm getting some sense, particularly in rural communities, that they support wind generation as long as the towers aren't visible to them or where they reside. You're going a step further in wanting to put them into high-density areas where they'll be used. What is the public reaction to these windmills in their community?

**Mr Young:** Well, it's interesting. When you talk to folks in rural areas they're actually quite excited about

turbines. I visited the plant up on the Gaspé, actually with my colleague Joyce McLean from Toronto Hydro. The farmers are ecstatic and I'll tell you why. These turbines, which are owned by another company, provide income for the farmers because their land is being rented out.

**Mr Parsons:** I'm talking about the farm next door that doesn't get the income but gets the view.

**Mr Young:** Right. You're talking about the aesthetic component of wind power and that's a very subjective one. I'll tell you that from all the studies and all the experience we have here at TREC, we know that before the turbine goes up is when people have the reaction. After the turbine goes up, that reaction goes away. For instance, we took a busload, as part of our public consultation, up to the only turbine at the time at Kin-cardine and we did a poll. We surveyed people before they got on the bus and afterwards, and concern around aesthetics went down. They were totally impressed.

**The Chair:** Thank you for your presentation. The time is up. We appreciate your offering and coming forward.

#### TORONTO HYDRO ENERGY SERVICES INC.

**The Chair:** Our next presentation is from Toronto Hydro, Joyce McLean, manager, green energy. For the sake of Hansard, please state your name. There's a total of 20 minutes for presentation, and what's left over will be left for the three caucuses to divide up evenly for their questions.

**Ms Joyce McLean:** Thank you very much. My name is Joyce McLean. I'm the manager of green energy at Toronto Hydro Energy Services.

Mr Chairman and members of the committee, I want to first thank you for the opportunity to speak to you about an important matter relating to the energy future of this province.

I work at Toronto Hydro Energy Services Inc, one of three subsidiaries of Toronto Hydro Corp. Toronto Hydro Energy Services has been set up as an energy retail company in anticipation of the electricity market opening to competition by May of next year. It is my job to develop and promote electricity generation alternatives such as wind, solar, small hydroelectric, methane from anaerobic digestion in landfills, for instance, as well as to develop the support for the use of energy efficiency and conservation measures. Most of these technologies have barely been explored or utilized in Ontario, something we are very excited about now that the opportunity is upon us.

Our current green power projects include siting two utility-scale wind turbines on Toronto's waterfront with the Toronto Renewable Energy Co-operative, and Bryan has already alluded to our partnership; a methane capture system at the city of Toronto's former landfill at Thackeray Road up in the Steeles and Kipling area; solar photovoltaic panels on a couple of Toronto Catholic

District School Board schools as well as a full retrofit of all of those schools; and other projects in the works.

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We are also developing a green energy retail offer for both residential and commercial customers. For all of these initiatives, we need to be assured that as the market establishes itself and inevitably grows, the sitings, development and approvals for green power projects are easily attainable. To date, we are concerned about the level of support being shown for renewable energy developments.

I'd like to discuss two important regulations the Ontario government has, one that is now law and one that is in consultation. Neither is favourable to developing renewable projects in this province.

The first is the environmental assessment rules for the electricity sector confirmed earlier this year by the Ministry of the Environment. Those regulations put undue, expensive process on developers of wind, a pollution-free technology, relative to the scope and capital costs that other types of generation can avoid. Despite protestations to the MOE, several renewable developers found that consultation resulted in absolutely no change to the trigger number for an EA screening process, that being two megawatts. That's essentially two or three turbines, or an investment of about \$4 million in wind turbines. If you are developing a landfill gas project or a cogeneration project, that trigger is 25 megawatts. That is a capital cost investment of approximately \$50 million for landfill gas, or approximately \$30 million for cogeneration. Both of those technologies, while valuable additions to our portfolio of energy technologies, do have emissions which need to be recognized and mitigated. A capital cost analysis tied to the level of emissions would have been a prudent method of developing this regulation and should still be given serious re-evaluation. How is it that a pollution-free technology needs more process than one that creates emissions?

The second regulation is the emissions credit and trading regulation, which is currently out for public consultation. The problems we see are that the definition in the regulation is too narrow as it only includes wind, solar and small hydroelectric. It ought to include methane from landfill and anaerobic composting, deep-lake water cooling and geothermal, to name just a few technologies.

The definition for conservation is equally narrow as the regulation would allow only lighting retrofits to be eligible for credits, while there are a host of improvements, such as increasing building insulation, that can be made in order to conserve energy.

The one kiloton set aside for renewables may be sufficient at the beginning of the market, but the language in the regulation does not allow for any increase to this number over time. This is in direct conflict with the anticipated growth of renewables in the global marketplace. Globally, wind power installations in 2000, according to the Worldwatch Institute, grew by 30% over 1999 installations, as an example, and that's a replication of what happened for 1999 over 1998. Currently, as you



know, we only have two utility-scale wind turbines in Ontario.

Another problem is the five-year limit on emissions credits being contradictory to the financing and lifespan of energy projects of this type, or actually any type. Most wind turbines have a life of between 20 and 25 years yet the duration of the emission credits are only being established at five. The duration should reflect the duration of the benefits that go along with the project itself.

If the government is serious about cleaning up Ontario's air, reducing smog days will come about only if there are significant, scheduled declining caps to both NO<sub>x</sub> and SO<sub>2</sub> emitters. Yes, this will cost money and, yes, those costs are likely to be passed on to consumers. Our surveys that Toronto Hydro has paid for tell us that people are prepared to conserve and to support green generation if this will ensure cleaner air for their kids and their elderly parents, even if it costs a little more.

As you know, the true cost of our energy is not captured on our electricity or our gas bills. In a truly competitive marketplace, our bills should include the pollution costs of damage from acid rain, ground level ozone and smog due to energy generation, particularly coal; the number of asthma patients in emergency rooms and the earlier mortality of vulnerable populations; and the cost of containing the waste products, particularly from nuclear, to name only a few points.

While Ontario consumers may benefit from relatively low electricity prices, 20 smog alert days so far in 2001 is really a measure of that price.

Wind and solar energy do not have any hidden costs. One factor that is critical come May 2002 is the establishment of a green market. The Ontario government could help this sector by easily following the lead of the city of Toronto and the federal government and establish a green power procurement policy. The city of Toronto, in its 2000 environmental plan passed by council, indicates a willingness to purchase 25% of its electricity supply from green sources. The federal government already buys green power from Alberta wind farms and is scheduled to buy from a recent Suncor-Enbridge wind farm in Saskatchewan. The Ontario government, with its many facilities, could establish a similar benchmark. They could even improve on it by tying that green power purchase to increased building efficiencies of government facilities. Employing certified contractors to do the audit and retrofit work would create hundreds of jobs, make government buildings more comfortable and reduce energy costs. This would free up tax dollars for other purposes.

Conservation works: the Ontario government could also help this sector grow by establishing, like many American jurisdictions, a renewable portfolio standard, or RPS. An RPS would ensure that a certain percentage of green power is included in both the transmission and distribution grids. From the province's perspective, this is a virtual no-cost item. From the sector's perspective, this would ensure green power developments in all parts of the province.

Toronto Hydro, like other deputants before you, is a member of the CARE Coalition, a unique collection of utilities, private companies and environmental groups formed to lobby for expanded tax measures favourable to renewables. I would urge you to review a recent Conference Board of Canada report that does point to inequities in terms of both tax treatment and subsidies for energy technologies in this country. Renewables, we all know, are better for the environment, yet polluting technologies continue to enjoy government support. It's time this changed.

While the federal government is considering the proposal by CARE for a producer tax credit for renewable developers, modelled on one the US government offers its developers—and that's 1.4 cents a kilowatt hour—the Ontario government could easily offer similar tax relief. This would be a tangible example of how Ontario can support the reduction of CO<sub>2</sub> and related pollutants, and would show the public that the federal and provincial governments can work together to address serious pollution and health problems, something the public clearly wants.

Toronto Hydro has done a lot of work in the past year examining the potential for developing renewable energy projects in this province, including studying the wind resource. As a business, we've also naturally examined the economics of renewables. We believe there is a strong business case to be made that complements the obvious environmental case to develop and promote projects of this type. The government can help through an information campaign to educate consumers so we can all benefit as a society.

In conclusion, Toronto Hydro is very interested in working further with this committee to establish the right kinds of policies, programs, incentives and tax measures to ensure that renewable energy has a rightful place in the energy future of Ontario.

Thank you very much for the time you've given me today and the opportunity to address you.

**The Chair:** Thank you for coming before us with an interesting presentation and good thoughts. We have about two, two and a half minutes per caucus, starting with the Liberal caucus.

**Mr Bradley:** You have some excellent suggestions for us, no question about it, particularly in terms of financial incentives that should be available for renewable energy, and I was pleased to see you raise once again the issue of the hidden costs that we find in the production of electricity using what we might refer to as the traditional methods.

You mention that should be calculated and factored into the costs. We're looking at those costs. Where would we be able to get those figures, that kind of information, today?

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**Ms McLean:** I know that one of the previous deputants, Jack Gibbons, has done some work on that, and I believe I'm not speaking out of turn in saying the

Green Energy Coalition has also started doing some work in this area. I'm looking at David.

I think there are resources out there to try to put better numbers on that. Jack specifically referred to the health care costs of over \$9 billion in terms of health effects associated with bad air quality, so it needs to be put into context. From a retailer's perspective, hoping to sell green power to people, we know it's going to be a challenge to explain that green power is going to cost more than your traditional or status quo energy. The problem we're going to face in helping to inform consumers could certainly be helped by the government in terms of an education campaign, because most people, when you explain it to them, realize there are these external costs that are out there that aren't captured on your bill, that we're all paying for anyway. But if they were on your bill, then as I think one of the government members mentioned here, if you had an active choice that gave you some information like that, that would help inform consumers when they do have the opportunity to buy from a variety of distributors.

**Mr Bradley:** Do you think the Ontario Energy Board would be an appropriate body perhaps to initiate some of those studies? I don't expect Ontario Power Generation to do it. They're in the business, and much of their generation so far comes from nuclear plants and coal-fired plants and others. But do you think the Ontario Energy Board, which is supposed to be above the fray, is an appropriate source?

**Ms McLean:** Yes, I do, and I would also refer you to the Conference Board of Canada report that I mentioned in my deputation. They looked at tax treatment primarily federally, but I think the same would apply provincially in terms of the subsidies and various measures that support the different types of technology, none of which are available really to the renewable sector.

**The Chair:** Ms Churley.

**Ms Churley:** Thank you, Ms McLean, for your excellent presentation. I should say that I think if the externalities were factored into our energy bills, the rates would just go through the roof, which is always an issue. That doesn't mean we should not have an understanding of what those externalities are and how much it would actually cost us if they were figured in, because one of the problems is that it's all topsy-turvy. When we talk about trying to bring in green energy, people have to pay more, because the others in a way are subsidized, and that is really absolutely crazy. We want to save our planet and we have to start thinking outside the box. Thank you for putting some perspective on that.

I wanted to ask you quickly about the EA process for wind turbines. As the environment critic for the NDP, I did receive—from time to time there are concerns about windmills killing birds, noise, other factors that people talk about, and I agree with your position on this. But I also would like to hear your position on those concerns around why people want EAs.

**Ms McLean:** I think there certainly needs to be an opportunity for the public to be consulted on any type of

projects that affect their community, their view, their perspective. However, I think that the way the EA rules are currently written, they're very skewed to the traditional types of technology and, in part, as Bryan Young alluded to, I think a lot of that comes from a lack of complete information at the official level in the Ministry of the Environment. We asked a very direct question, "What do you think the most specific concern is with windmills?" and the staff person we were dealing with said, "Aesthetics." I said, "Oh, so you like the look of smokestacks better?"

It was a flippant answer, but I think the fact that that was the concern that was raised as the predominant one, when we have other technologies that actually produce very harmful emissions that can hurt people, that can hurt the environment, that can hurt wildlife and so on, when we're talking about a pollution-free technology that, granted, is large but doesn't have the same effect, it's not being treated equally.

I think there is a definite need for information and experience at the official level in the ministry. As Bryan said, we took busloads of people, average people from around the sites where we're proposing to put our turbines up in the city, up to Kincardine, and it was amazing to see what they thought they were going to experience and then what they actually experienced. We did a little informal survey on the bus where we asked them, "What do you think about noise, height?" because the basic issues associated with turbines really come down to four: specific site, birds, noise and visual, and that's it. So when we asked people, they had a certain perspective before they saw the Kincardine turbine, and everybody's view changed once they stood underneath it, could touch the tower, could look up at it, could barely hear it and so on. So, as I mentioned, I think there is a serious lack of information and experience at the official level, and this got translated, unfortunately, into a regulation which will cost wind developers more than it will status quo developers of other types of energy technologies.

**Mr O'Toole:** Thank you for your presentation. Certainly we have been hearing from many of the proponents of alternative energy and I think it's very educational for us as committee members. We only bring our natural insights into these roles.

I'm quite sympathetic to the first two points you make with the EA process. It's duly noted. I think discounting the legitimacy is part of supporting the current technology and the current kind of monopoly position of generation.

Specifically on the emission credits, I think that's an important one. It's part of a larger debate, as you know, with Kyoto. It's widely debated as to what are they, how are they accounted for and the rest. But there's clear evidence that clean energy, specifically wind—and I might say that I'm going to the Pickering demonstration today, because it's close to my riding. I commend OPG and the government for working toward establishing that



as a legitimate demonstration of supplying 600 homes with a renewable form of energy.

I want to take up one question, with respect. We hear relentlessly in the House—and it's good to hold the government accountable—all governments: provincial, federal and indeed municipal. I think the number that's bandied about is the \$9 billion on health care and the 1,900 deaths and the asthma. There's no disputing that there is linkage between that.

I'm questioning the accounting functionality here. When I hear \$9 billion, I'm saying, OK, if we just eliminated Nanticoke and the other plants and dealt with that asset being written off somehow through rates or whatever, which may be the challenge for the consumer-education component, would that \$9 billion actually come out of health care? That's the question I have to you. In reality, we use these numbers, and Howard and others use that in the House frequently as a number, as if it's something we can save. How do you respond to that? Could you take \$9 billion out of the \$23 billion in health care? That's realistic if we're using the number as the real number we'd save over time perhaps. Give me your response to that, as part of the educational-fairness equation.

**Ms McLean:** First of all, that's not my number; that's the Ontario Medical Association's number.

**Mr O'Toole:** Whatever number. They all throw it around.

**Ms McLean:** But it's important to look at where that number comes from. That's the OMA's number. They are talking about 1,900 premature deaths in this province, and in Toronto alone 5,500 needless hospitalizations every year due to smog days. This year we have had 20 smog days already. There's no question the costs are difficult to calculate because you're also talking about people's general functionality going down too, which is very hard to put a dollar figure on. So I can't answer that question directly. I'm not responsible for that number.

**The Chair:** Thank you very much. You are well over three minutes. We appreciate your presentation and your coming before the committee. Good information.

## UNION GAS

**The Chair:** The next presentation is Union Gas; Brian McKerlie, director, engineering design and construction. If you don't mind, just state your name for the sake of Hansard. There's a total of 20 minutes for presentation and questions from the three caucuses.

**Mr Brian McKerlie:** Thank you, Mr Chair. I understand there's a name change that was on the agenda. My name is Brian McKerlie. As you mentioned, I'm the director of engineering design and construction for Union Gas. I just want to say that it's a pleasure to appear before this committee today.

First off, I would comment that we're supportive of the mandate that's been set for the committee. We feel this initiative has a challenge of really a longer-term plan in terms of moving toward the goals as laid out in your

mandate. Our suggestion would be that it be a plan with a number of phases and it be a plan that we agree with you should be initiated today.

We offer some considerations today perhaps a little more focused and focused on some of the interim phases that we believe the plan should give consideration to. I'll be spending a few minutes on emerging technologies for distributed generation, primarily fuel cells and micro turbines, and the benefits for Ontario's future and how we think the process can be supportive to ensure that these technologies have a reasonable introduction into the market.

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For those of you who may not be as familiar with Union Gas, I thought I would start briefly by introducing ourselves to you. We are part of the Westcoast Energy Inc group of families, a Vancouver-based organization. The slide on page 3 gives a brief profile of the Union Gas activity. We serve 1.1 million transmission and distribution customers in northern, central, eastern and south-western Ontario. Also notable but not shown on the slide is that this year we're enjoying our 90th birthday. We have been in business for 90 years. We're definitely proud of that fact and the areas we've served.

From a Westcoast perspective, we've moved sustainable development to the forefront of our business decisions. This activity has been strongly confirmed through commitment at our most senior levels through the establishment of an executive sustainable development committee.

The Westcoast Energy family of companies accepts that climate change is real and that the effects are influenced by human activity. Our commitment to sustainable development dictates that we approach all operations and activities with an eye on their economic, environmental and social impacts. While we may be somewhat biased on this issue—after all, natural gas is the foundation of our business—the fact remains that natural gas offers part of the solution to climate change and concerns over air quality. In combination with energy conservation it will help bridge our current energy needs with renewable energy sources that will become more viable in the future.

You probably have had some discussion over the past few presentations relative to what distributed generation is. It's actually a term that you could translate fairly literally. It is the generation and production of electricity on or near the site that will use it. This, of course, would be compared with centralized generation, with large centralized plants and a transmission wires grid to distribute the power. From an emerging technologies point of view, I'll be spending some time today on fuel cells and microturbines.

There are a number of considerations as to how these systems may be designed and worked into the market to serve the needs of consumers. There are applications where the equipment could serve part of the load of the consumer, meet all the needs of the consumer or produce

excess power, and then, of course, the residual would be balanced against the existing grid.

Current economics, through our review, do not support these emerging technologies in today's market with current commodity costs and capital development costs. Our concern, though, at this point in time of the process is that there are a number of policies that are not supportive of this technology being introduced to the market, and we would like to spend some time highlighting that with you today.

Page 7 is just to help illustrate what you might see if someone were to take you to one of these sites. We've tried to illustrate a couple of fuel cells and a micro-turbine. At the top right is the initial development stage of a Ballard 250-watt stationary fuel cell power generator. At the bottom would be PlugPower's residential fuel cell that would produce in the order of seven kilowatts, which would be the approximate size that you would require in a typical residential home. The top-left corner is the Capstone 30-kilowatt microturbine which would be utilized for small commercial application.

Moving on, I'd like to go back and discuss the bridge that natural gas will form between today's demand, conservation efforts and the longer-term goal of renewable energy forms. Looking at today's market, we can see that compared with coal or oil, natural gas energy is environmentally preferred because it emits fewer of the compounds that cause acid rain, climate change and smog.

However, looking forward to the role of natural gas in introducing environmental forms of energy generation into the future, I'd like to draw your attention to slide 9. Emerging technologies like fuel cells and microturbines represent a new generation of energy products—clean and efficient. There has been a good amount of debate over the role and opportunities for hydrogen, but the real issues that we need to be conscious of are not so much the benefits of the use of the hydrogen but also to be aware of the issues around the production of that hydrogen. When natural gas is used to produce hydrogen, fuel cells can reduce the number of pollutants, including carbon dioxide and nitrogen oxides, as seen in this slide, relative to the carbon dioxide comparison for fuel cells in transportation use.

We should keep in mind that until hydrogen can be produced in market quantities from renewable energy sources such as water and wind, it must be manufactured using fossil fuels.

Distributed generation by emerging technology offers many benefits to Ontario. By supplying customer choice and a diversity in the way power is brought to the markets, Ontario will be in a position to meet its demands by optimizing its existing system while avoiding costly upgrades of the centralized generation infrastructure. Competition in the industry is important and a stated goal of this government through the latest legislation of Bill 35. These emerging technologies offer advantages and complement this goal while at the same time having

favourable environmental performance. We believe this opportunity should be encouraged.

How can we do this? We have a couple of recommendations for your consideration. We've identified a couple of overall areas that are not currently aligned in a way that will support the market introduction of this distributed generation. I'd like to highlight a couple of issues, one from emissions trading that you've heard a little bit about today, and the other from the electricity industry restructuring that we're currently in the middle of.

From an emissions trading perspective, we've already commented that natural gas as a fossil fuel is not the ultimate solution. At the same time, we feel we must walk before we run. Natural gas represents a bridge by emissions reduction, a necessary step toward emissions elimination. We're all operating in a shades-of-green environment at this time. An indirect reductions trading system would encourage this technology and be reflective of the environmental benefits that result.

In the area of market restructuring, the Ontario electricity market is poised to open to competition. Much work has been done in its preparation. However, there are a number of non-conventional issues that have not been addressed, and I would suggest that they have not been addressed due to the necessity of dealing with some of the bigger issues in preparation of market opening now targeted for May 2002.

Small-scale distributed generation can be a real benefit to Ontario, but at this time the technology would face real roadblocks. There is not a provincial standard for how to interconnect with the power grid, and that's regardless of the actual fuel in this distributed generation. But small-scale distributed generation would have to deal with each of the municipal electric and provincial electric distribution grids. So you can imagine the potential for 93 sets of requirements in Ontario alone in terms of standards for this technology to meet.

Second, there's been much discussion about the debt retirement charge and other tariffs relative to the new market rules. To have a small DG plant attract such a charge on self-generated power would create an administrative as well as financial burden. The 15-kilowatt threshold in the current debt retirement charge draft should be revised. Additionally, other tariffs such as standby and net metering should be developed as well.

Third, theoretically anyone who distributes power requires a distribution licence from the OEB. So picture an apartment or shopping mall owner being subjected to this requirement if they install a microturbine and distribute their own power. The OEB has indicated that while this not practical, it is technically a requirement of the OEB act.

In summary, then, there are two key thoughts that fall within the opportunity to move Ontario toward a greener future. First, distributed generation has a role to play in a flexible and fair emissions reduction trading system. Such technology that reduces emissions should be considered. Second, we need to focus on the electricity



market rules to ensure DG is encouraged and not disadvantaged. Progress in this area will create an environment that is supportive of this environmentally friendly technology and begin the process that will meet the goals as laid out in your mandate.

Thank you very much.

**The Chair:** Thank you for your presentation. There are approximately two and a half minutes per caucus for questions. I started with the Liberals accidentally last time, it should have been the PCs, so I'll start over here this time.

**Mr Ouellette:** Thank you very much for your presentation. Being that you're from Union Gas, I want to emphasize something I've been dealing with with other gas suppliers in the past: future investments in natural gas. According to the Alberta energy board, gas production should peak by 2003 and then, after that, have a 2% decline for the next five years. Yet the US energy board claimed that by the year 2015 there will be a 45% increase in natural gas, with only a 2% increase in supply. The new lines possibly coming down from the Arctic aren't due to be on-line until 2008 to 2010, should they proceed, yet will only replace current production. How is your industry going to take into account the increased demands without having the supply there?

1200

**Mr McKerlie:** What we found is that there have been numerous studies relative to how, as existing production declines, as you've pointed out, it would be replaced. I think there is a high optimism that the supplies from the northwest, supplies off the east coast and to some extent supply out of the Gulf will continue to be advanced by improved drilling and resource recovery techniques.

Without being overly critical of the industry, I think we have to appreciate the fact that the recovery of energy resources and the techniques that are utilized are often reflective of the value of that commodity. So when natural gas was at very low levels in fairly recent history, I think you would find that the drilling activity was really recovering the gas that one would say would be the easiest to get at. As the market commodity transitions and is more reflective of the new drilling activities, I think you'll see the techniques improve, such that I believe we'll find that the statistics relative to available supply will actually improve.

**The Chair:** We'll move on to the official opposition.

**Mr Parsons:** Interesting presentation. The calls to my constituency office last year were from individuals who heated with oil or natural gas and faced substantial increases. No one who heated with electricity called me. The price was relatively stable.

Your proposal to have the individual electricity generated at the house: will there be stability? How can I say to my constituents that the price will be somewhat stable for their electricity if they do generate it from natural gas?

**Mr McKerlie:** Mr Parsons, I think electricity has been very stable: seven years of either flat pricing or, in some cases, declining as a result of the price freezing. I think

what you're going to experience upon market opening and introduction of Ontario into a broader regional trading grid is that over time you will start to see natural gas and electricity price convergence as a result of one being produced from the other.

I think our suggestion relative to the opportunities of producing electricity at the home is several years out and that economically producing electricity at the home for natural gas is probably at least five to 10 years off, at which point in time I think you will experience a significantly different electricity commodity price structure in Ontario.

**Mr Bradley:** The question I have relates again to supply. My concern is that the federal government and the Alberta government, to give two examples, are itching to peddle as much gas as they can to the US, and the last I heard there wasn't an unlimited supply of gas. It's not a renewable resource. How do you view your ability to obtain natural gas for eastern Canada in view of the penchant of the federal and Alberta governments to sell as much as they can into the US market?

**Mr McKerlie:** I think at Westcoast we've made some fairly substantial statements along that line. We have invested significant capital in linking the northern Alberta and BC markets directly into Ontario through our participation in two pipelines: one known as Alliance, which brings gas from Alberta to Chicago; the other known as Vector, which brings gas from Chicago right into our system in Ontario. I think that our participation in ensuring that those supplies are deliverable and available for Ontario is a matter of record to our investment.

**Ms Churley:** I liked your presentation; I think it was really clear and concise. But following up on Mr Bradley's question, it does seem odd to me: if Mr Ouellette is right, and he has raised this on several occasions, there are more and more possible uses for natural gas that we've heard about over the past day or two and recommendations to go even further with natural gas, which I think we generally all support, and you said yourself that you see what you're proposing now as an interim bridge. In a way, you answered that question in your presentation by saying this is not the be-all and end-all; it's an interim bridge with shades of green right now. But at the same time you're saying that we are exporting natural gas when there is a finite amount. Can you comment on that?

**Mr McKerlie:** Westcoast's and Union's position is that it is an evolving industry and it is going to require greater advancement in the area of renewable resources, and that's some time off. I think what we're saying is that during that interim period of time we have made investments and certainly put plans in place to ensure that our ability to continue to supply natural gas is strong. At the same time, we are dealing with a very open economy with the US from a commodity perspective, and that's the industry in which we work.

What I didn't have an opportunity to offer earlier was the fact that in Ontario, Union has taken a number of steps toward education around conservation and energy

efficiency through educational programs and products and services that we've brought to market through channel partners who are sort of the face of that initiative on our behalf in Ontario. So we are trying to balance both ends of that issue.

**The Chair:** Thank you very much for coming forth. Time has run out. We appreciate your presentation.

The committee is now recessed until 1 o'clock and we will commence at 1 o'clock. Please, all members, be here at 1 o'clock so we can get started on time, because I think there are a couple of members who would like to make sure that we end on time this afternoon for some event.

*The committee recessed from 1207 to 1301.*

#### TORONTO ENVIRONMENTAL ALLIANCE

**The Chair:** We'll call the select committee on alternative fuel sources to order once again. Our first presenter for this afternoon is from the Toronto Environmental Alliance, Keith Stewart, smog and climate change coordinator. Welcome.

**Dr Keith Stewart:** Dr Keith Stewart. I'm the smog and climate change coordinator with the Toronto Environmental Alliance. I'm delighted to be here today. Energy has been a long-standing interest of mine. I actually wrote my PhD dissertation on environmental policy in Ontario and a lot of that was looking at energy policy and different energy paths.

I'm reading some overheads. Is it OK if I just speak or do you need me to speak into the microphone?

**The Chair:** Maybe we can get the other microphone turned on at the other end of the table there. Speak loudly enough so that Hansard will hear you. I guess they want you to sit down. We'll get somebody else to put the slides up for you, just so they'll hear you.

**Dr Stewart:** I want to speak briefly on some of the costs of air pollution and then look at five different policy measures which could be part of an overall package to promote alternative fuels and non-fossil fuels.

You have a package which includes this material and a little bit more depth on some of the policy ones. You've probably already heard that fossil fuels are a major problem for the health of this province and for the long-term future of the province with regard to climate change. The electricity sector, which I'm going to focus on today, is a significant source of air pollution in this province. I've put some numbers up there which are taken from the Ministry of Environment report on coal in Ontario, so these are just the numbers for Ontario Power Generation.

What this air pollution leads to is preventable deaths, unnecessary premature deaths, and illnesses and real reductions in our quality of life. Last year Toronto Public Health estimated that air pollution results in 1,000 premature deaths per year in Toronto and 5,500 hospitalizations in the city. The Ontario Medical Association estimated that particulate matter causes 1,900 premature deaths each year in Ontario. The distinction between these two numbers is that Toronto Public Health looked

at six different air pollutants; the OMA only looked at one when they were looking at premature deaths.

This also has significant economic costs. According to what the OMA says are conservative calculations, we're looking at \$580 million in health care costs—that's only hospitals, because they didn't know how to calculate visits to doctors; \$560 million in productivity losses; and total economic damages to the province of about \$10 billion per year. That is, in their words, a conservative estimate.

Of course, many of these things which come out of the fossil fuel stations are fuelling climate change, which we're already experiencing now, and it's definitely a major problem for this century.

How do we deal with this? The most important way, when we're looking at alternative fuel sources, is to look at what we can call negawatts. That is, energy we don't use because we're undertaking our activities more efficiently. That type of energy efficiency is definitely the greenest source of energy. It's also going to help make our economy more competitive and reduce fuel imports into our economy. But to make this happen, we need a supportive public policy framework. Without policy measures we're going to run into what political scientists call the tragedy of the commons, where each individual seller is going to do what's rational for them—that is, try and sell the most electricity possible. That's how you make profits. You don't make profits by not selling something. And we're going to lose a lot of the opportunities for achieving the savings on the consumer side. We need to help those energy distributors or seller become energy services companies, so they're selling not just electricity but a whole package of services which include conservation measures.

I think we have a good model—it would obviously have to be adapted to the electricity sector—with what's being done with the gas companies right now. I know you're going to hear more about that from David Poch, who will be speaking next; I won't go into too much detail. This is also being done in a number of US jurisdictions. For instance, Wisconsin requires the utilities to spend 0.5% of their total revenue on programs designed to achieve energy conservation. Overall, I'd like to see actual conservation targets rather than just spending, because that encourages companies to do it as efficiently as possible, which of course is better for all concerned.

But we should be looking at ways to level the playing field so that the companies which are doing the right thing and helping their customers conserve energy don't get undercut by people who are not undertaking those expenses, and potential lost revenue. We need the sort of financial incentives and disincentives which the gas companies face.

Secondly, I think one of the most efficient public policy measures we can have for developing renewable energy is what's called a renewable portfolio standard. This is a standard which says that a certain percentage of electricity, which increases over time, must come from



renewable sources. If you want to be allowed to sell electricity in Ontario, you have to do your part in promoting clean forms of energy by achieving a certain standard which increases over time.

This can be done with a good deal of flexibility. You can use some sort of market incentives to enhance, so if you have somebody who wants to specialize in renewable, they can provide that share of the portfolio to other companies. But this is the way we're going to get steady, predictable growth in the renewable energy industry. It's going to help this fledgling industry obtain lower-cost financing and achieve economies of scale. That'll make these technologies more competitive and help develop an Ontario economy in this so we're not simply importing all of the technology from other places but creating jobs here. We're going to have some competition happening between renewable suppliers, which is going to help achieve better prices, and in terms of various policy measures, this one has a relatively low administrative cost because the market is going to be deciding what kind of renewable energies are going to be produced and where. You're just saying, "You've got to meet this standard, but how you do that within these guidelines is up to you."

As of April 2000—I'm trying to find the most recent number, but this is what I've got for the moment—10 US states had adopted renewable portfolio standards. These are expected to lead to the development of 5,450 megawatts of new renewables by 2012 and to support 3,600 megawatts of renewables already in place. To give you a sense of what this means, that's about 5.7 million typical homes being powered by renewable energy.

Some model RPSs that you might want to look at include those in Texas—which actually has quite a good one—Connecticut and Massachusetts. We can learn from the experience of the American states in implementing these types of measures and look at what has worked, how to get the wording and how to make the system the most efficient and effective possible.

The Toronto Environmental Alliance would like to see a renewable portfolio standard for Ontario which sets a minimum of 5% of electricity from green power by 2005, 10% by 2010, and this number will continue to increase over time. Coupled with energy conservation measures which are reducing demand, this means we're going to get some real improvement in air quality.

1310

The next screen is power labelling. For the first time in almost 100 years, people are going to be able to choose where to buy their electricity from. It's going to cause a certain amount of confusion, based on the experience we've already seen with the gas and telephone companies when monopolies were deregulated, but there already are people who want to buy green power. A 1999 Environics poll found that 15% of Canadians said they would definitely pay more and 50% said they would probably pay more for green power. In Ontario the mean amount they were willing to pay per month more was

\$12.30. With consumer education on this, I think these numbers will actually rise.

The trick is to turn this desire to do the right thing into actual purchases, into results. For this to happen, consumers are going to need confidence in the integrity of the green electricity offerings that are being made. They don't want to think they are being fooled by Green-Watch. They want to know that it's going to be green and they want to know it's making a difference.

For this to happen, we're going to need clear and stringent green power labelling programs. The one we would support right now, and that I know a number of other environmental groups are interested in supporting, are the draft Eco-Logo standards which have been developed by the federal government. This is a widely recognized system. There has been a lot of stakeholder input into this and they are good, clear rules.

On to net metering. Net metering is, if you produce your own power, if you are producing more than you need, you can feed it back into the system, with of course appropriate safeguards to protect the occupational health and safety of the power workers. It's a good way to encourage households, small businesses, schools or other institutions to start producing their own power in a very decentralized way, reducing losses over the transmission system.

In the US, 33 states currently have net metering policies. Four more are being developed. A model you might want to look at is the one in Iowa, which has been very effective in promoting institutions generating their own power. Rather than setting an overall cap, if you're a big power consumer, you can produce more of your own power and feed more back on to the grid if need be.

Another policy measure which will improve or help foster a market in green energy is government purchases. The federal government has committed to a 20% purchase of green power. The city of Toronto has committed to buy 25% of the power for its own use from green energy by 2005. This purchase commitment was crucial to Toronto Hydro launching their own request for a proposal for 15 megawatts of green power. The Toronto Environmental Alliance would like to see the provincial government match the city of Toronto's commitment to buy 25% of its energy requirements from green power by 2005. We're also interested in trying to aggregate demand from other large consumers—companies, institutions and individuals—to help achieve economies of scale and lower prices, basically good deals for everyone involved.

I'll stop here, and wonder if you have any questions.

**The Chair:** We have about two and a half minutes per caucus, beginning with Ms Churley.

**Ms Churley:** Thank you for your presentation. We've heard, and I'm sure we'll continue to hear, some of these suggestions. At this point what I'm wondering is, there are a lot of good recommendations. If we had to make priorities here, just getting things kick-started more than they are now, what would you suggest to us, the com-

mittee, that we recommend to the government to put in place right away?

**Dr Stewart:** My top priorities would be the energy efficiency measures and the renewable portfolio standard. I think those are the most effective policy instruments. It's a way to create a fair playing field which is going to help improve environmental performance from the electricity sector.

The green power labelling—I'm going to be going out there telling people to buy green power. A lot of environmental advocates are. That's going to be important. But I'd say in terms of this committee's work, my priorities would be the efficiency measures and the renewable portfolio standard, because those are the things where I think provincial policy is going to be crucial to make a real difference.

**Ms Churley:** What do you think about the externality associated with the cost of the fossil fuel provision of energy that we have now? The rates are kept low, and the public demand that rates be kept low. On the other hand, there are a lot of hidden costs and yet green power has been asked to actually pay more. It's topsy-turvy; it's upside down. How do you think we could start changing that around?

**Dr Stewart:** I think the renewable portfolio standard is one way to begin doing that. Rather than asking people to pay more for a product which is actually providing a net social good, you're creating a base in which if you want to sell in this market you have to achieve this level.

The European Union just financed a major study which found that coal is about twice the cost of wind power once you take into account the externalities, the health damages and other environmental impacts.

**Ms Churley:** Exactly.

**Dr Stewart:** The current edition of *Science*, which is a very prestigious journal, has an article on renewable energy policy based on the US context which is making a very similar argument, that in fact wind energy in particular but also other forms of renewable, when you look at their total costs, are cheaper. This is where I think we need a role for public policy, to help realize those social benefits which the market—well, the market always operates within rules and we need rules for the market which help people achieve the overall social good rather than simply the lowest internalized cost, with huge costs that are externalized on to the lungs and the future of the province.

**Mr Gilchrist:** Thank you very much for your presentation. We are certainly seeing some common themes emerging here in terms of the labelling, the RPS. We've had some other suggestions. In fact, your presentation to some extent touches on the more accurate way of comparing apples with apples and looking at all of the downstream and upstream costs in the production of each type of energy.

One of the things the committee is obviously going to be struggling with as we prepare our report is the cost of any suggestions we might propose. You talk about how the existing technologies have health-related costs. How

are we going to quantify, for the purpose of looking down the road, a realistic shifting in those costs for the energy sector? There is so much, by guess and by God, going out there right now. The OMA had their opinion and a week later there was a think-tank that came out and rebutted their numbers completely and said their methodology didn't work. Notwithstanding that, nobody agrees that dirty air is anything other than a contributor to asthma, so I'm not going to try and just pick up numbers.

But everything has some impact. Somebody has a factory manufacturing those wind turbines, and if we're proposing to build them here in Ontario, what will that cost be? Where do we turn to get the best possible science? When you judge these different technologies, whom do you trust?

**Dr Stewart:** The problem with trying to figure out the real cost of things is that it isn't actually passing through a market. We don't have a fixed price. So you're always going to have to clarify what assumptions you're making in order to determine what this is costing either the economy or people's health or whatever.

The European Union's model provided a range of estimates. What they said was, "If you have this set of assumptions, it's about here; if you have that set of assumptions, it's up there. We're going to get somewhere in the middle," but it's within this kind of range.

Obviously, I would look to the high end because that's where my values lie and where I would agree with that as the set of assumptions being made. But I think if you clarify your assumptions, you'll actually still find that things like coal—a great 19th century technology but it's had its day. Certainly if you wanted to get direct numbers, it would require a little bit of work but you could feed into the OMA's "illness cost of air pollution" model, the figures for what happens if you were to remove, say, fossil-fuelled electricity generation in Ontario. We know how much tonnage reduction that would be, and then you have to model that into what that would do to the ambient air, and then their model will predict, using widely recognized epidemiological coefficients, what the health impacts of that are going to be.

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**Ms Bountrogianni:** Just very quickly, before Mr Bradley asks a question, my only question is, may we have the reference for that European health study? That would be something that perhaps the province might think of commissioning at some point.

**Dr Stewart:** Can I give it to the clerk? I have it back at my office and I'll get a hold of that and send it along. It was done by ExternE, but I'll get the actual reference.

**Ms Bountrogianni:** Thank you very much.

**Mr Bradley:** I'm interested in your opinion of emission trading. I call it "licence to pollute" and "pollution trading"; that's really what it amounts to, in my view. But there are many people who like to propose emission trading or pollution credit trading as a viable alternative to requiring everybody who produces pollution to reduce that pollution as much as possible. I'm interested in what your view would be of the



proposal that the Ontario government has at the present time for pollution credit trading.

**Dr Stewart:** We have some major concerns with that proposal, particularly because not all sectors are capped, so capped sectors are trading with non-capped sectors, which is a problem.

With regard to the renewable energy, one of the things we're going to be doing is, as we evaluate offerings, as we do on our Web site right now, one of the criteria we're going to use is, is it Eco-Logo certified? But the second one, is it new—to have a net benefit it should be new—and have the people who are selling this agreed to retire any credits that they receive? The Toronto Renewal Energy Co-operative and Toronto Hydro have made this commitment, the idea being that they receive credits for renewables and rather than sell those to basically allow someone else to put out that emission, that pollution, if they're going to be genuinely green they should retire those credits.

I'm not a big fan of emissions trading, because I think to actually police the system properly would require more administrative resources than other types of regulatory standard setting which can achieve continuous improvements such as that called for in the Gibbons report that went to the MOE. I think emissions trading can be so complicated and there are so many loopholes that to police it properly will be more trouble than it's worth. We have serious concerns with even the existing rules that have been put forward, many of which have been voiced with regard to whether or not it's capped, the system being overly complex and currently seeming to be biased toward Ontario Power Generation.

**The Chair:** Thank you, Dr Stewart, for your presentation; it's much appreciated. Time has more than run out. I appreciate your coming forward with some very interesting information.

**Dr Stewart:** Thank you very much.

**Ms Churley:** Before we move on, may I ask, Mr Gilchrist, for the name of the institute or think-tank that disputed the OMA results?

**Mr Gilchrist:** Fraser.

**Ms Churley:** Oh, it was the Fraser Institute. OK, thank you. I just wanted that for the record.

## GREEN ENERGY COALITION

**The Chair:** I now call on the speaker with the Canadian Renewable Fuels Association.

**Mr David Poch:** Are you changing the order?

**The Chair:** Oh, I'm sorry; I've jumped one down. Green Energy Coalition, Greg Allen and David Poch. My apologies for that.

**Mr Poch:** Hello again and thank you for this opportunity to speak. As I indicated this morning, the Green Energy Coalition, which comprises the Energy Action Council of Toronto, Greenpeace Canada and the Sierra Club of Canada, wants to focus today on demand-side management. We think this is at least 50% of the solution to the problem that you're grappling with, the big

problem of what we do as we, through whatever means, natural attrition or more active intervention, phase out the older plants that are giving us difficulty today.

With me is Greg Allen, who is a professional engineer and designer who specializes in low-energy designs and who is on the steering committee of the Green Energy Coalition. I'm going to talk about DSM and then I'm going to invite Greg to just expand a little about some of the other opportunities for the government.

We've had gas sector deregulation in Ontario for more than a decade. Often residential customers aren't aware of it, but you have that opportunity to buy your commodity from a number of suppliers. I'm sure the committee members will hear complaints about some of the practices there. But we've had deregulation; we've had this experiment going in Ontario, and we have a tremendous success story which is relatively unknown in the form of gas demand-side management.

The energy board has given its blessing to a set of regulatory rules governing Enbridge Consumers Gas in particular that were developed in a kind of collaborative effort with Enbridge and the various customer and environmental stakeholder groups. It's a set—I won't burden you with the details—of regulatory accounts, the net effect of which is to give the shareholders of Enbridge a piece of whatever energy conservation savings they obtain for their customers to the extent that they perform better than targeted. If they perform under the agreed-upon target in any given year, they pay a penalty to their customers.

We've had it in place for a couple of years now. They are running with it, we're delighted to say. I think Jack Gibbons gave you some numbers this morning for 1999. The numbers for the current year, 2001: Enbridge has budgeted \$10.5 million, funded out of rates. It will achieve for that benefits to its customers on the order of exceeding \$100 million, which benefits of course accrue over the years, over the life of the measures that will be installed this year. That will repeat each year, and it's been growing dramatically. Well, we hope it will repeat and we hope it's growing.

We have a problem right now. The energy board—I think you might have heard it in a bit of coded language this morning from your former colleague, Mr Laughren, when he kept referring to that section of the new Bill 35, with their mandate facilitating energy conservation in accord with government policy from time to time. I think, if I may, what Mr Laughren might have been getting at there is he needs to know from you what government policy is. They have indicated in a recent Union Gas decision that they're cogitating on where they go with all this. Mr Laughren mentioned that within the next year there will be the next round of hearings on the electric distribution side, and that's the question on the agenda: should there be DSM for electricity, and if so, how to incent it.

We have a fantastic example. It's working with Enbridge. I think all the government needs to do is say to the OEB, "We're pleased with that. Implement it in some

suitably adapted fashion on the electric side, and you will have done tremendous service to the province," with relative ease and, I should say, ultimately with negative cost. That \$10.5 million I spoke of, which is what Consumers will spend this year, its customers will receive not only that direct \$100-million benefit if they are participants in these various programs, and they cut across all sectors, but even if they're not a participant in a conservation program, consumers will lower the utility's long-term costs of expanding pipeline storage and so on by more than \$10.5 million by reducing the growth of demand on the system. So all customers will enjoy benefits from that program.

If it's such a good free lunch, why do we need to have special roles to encourage anybody to do it? Why don't we all go down and pick up the money off the sidewalk? The answer is market barriers, as the economists would say. There are any number of little problems out there in the economy that stop the economy from doing what is optimum. I've given an example in my materials of the split incentive. It's perhaps the most famous one, where you've got a tenant and a landlord. The tenant is paying the electricity bill; the landlord is paying for the capital plant, the HVAC and what have you, the furnace and so on. The landlord doesn't have an incentive to put in a more efficient furnace. The tenant doesn't know that he or she is going to be around long enough, if they were to negotiate something with the landlord, to pay for a more efficient furnace, they just know that they have to pay the operating cost. No one has the incentive to do what rationally would save some money overall.

1330

Utilities are well positioned to recognize those problems and come up with innovative financing techniques, what have you, to get around these hurdles, and they've been very innovative. If you give them the carrot, they'll go for it. So I would just say if this committee does nothing else, this one is easy. It's low fruit there for the picking. Amory Lovins, the fellow who coined the term "negawatt," said this is a free lunch that they're going to pay you to eat. We just have to make sure that the regulatory structure is there to support it.

I'd like Greg to expand a little more about some thoughts on other opportunities for the government.

**Mr Greg Allen:** I've been on the front lines for 30 years in practice state-of-the-art energy efficiency opportunities as they are permitted. I think I've certainly come across most of the barriers that are out there and they can become impossible, even though I'm pretty bull-nosed about trying to overcome them.

The good news is that over the last decade the electrical sector in Ontario has had a pretty flat demand for electricity, which has had enormous benefits in terms of avoided capital investment, reduced costs, reduced import of energy and therefore wealth staying in the province. It has maintained stable electrical costs and reduced pollution emissions as a result. The quantity must be large. This province has grown economically and in its population enormously in the last decade. But the potential is much larger. Even in conservative estimates

on the currently available economic potential of retrofit we should be able to achieve a 50% reduction in our electricity consumption; it's how to get at that very large market opportunity.

In the new construction field and new products, the figures are higher, typically around a 75% reduction over current practice. Certainly in my own practice I've achieved those ends at negative capital cost. In other words, capital cost savings and having dramatically reduced energy bills is not an inconsistent design objective.

Unfortunately, we have rate structures—unaccounting and misallocating of benefits—in our energy markets as they sit right now. We have inappropriate regulatory constraints, any number of economic reasons why optimum selection isn't being made. Most perversely, though, if you allow the market to do what it's been doing, which is sometimes called cherry-picking, a firm will go in and retrofit lighting or change a furnace instead of employing the choice of measure that could have achieved good paybacks in, say, seven to 10 years. You pick the two-year payback because you get your money and run. That's been happening with energy service companies and it's a problem, because once you've made that decision, then the economics are eroded for going back and upgrading it again. If you put in a mid-efficiency furnace and then decide, "Oh, gee, I blew it. I should have got a high-efficiency furnace," it's too late. You've already sunk that capital and you're going to have to wait till your next furnace is ready to retire. So you want to stimulate optimum economics. Obviously on the production side of electricity the plants are amortized over much longer periods, at lower-cost capital too, than the consumer end of this bargain, so we have this great discrepancy about economic opportunity and non-take-up.

There are many other market failure mechanisms. Some of the ones that I come across routinely: institutions typically divide their operating and capital cost programs. They don't look at the life cycle decisions. A university will build a building that would have been able to reduce the overall costs of operating that building enormously—capital amortization and the operating cost—but because the budgets are separated, there's no price signal over to the designers of the buildings to optimize for the economic interests of the university. That's commonplace even in this government's operations, I suspect.

The access to capital is a big one. Churches, for example, can't even borrow against their real estate. There are high transactional costs for small customers. The design fees that we have as professionals are based on the capital costs. We would like to drive the cost of construction up because that's how we make the most money, not drive the life cycle cost of our designs downwards. So there's perversity in the way that professionals are paid. They need to be paid adequately to change the status quo to a much more optimum end result.

Governments, of course, are in very strategic areas that affect outcomes here: regulatory, establishing the



market rules, standards enforcement and creating them, industrial development support, and its own portfolio of energy consumption. In a variety of ways, I believe, the government can be very crucial in accelerating the take-up of energy efficiency and yielding the economic benefits for the province.

We've talked about the role of demand-side management within the utility business and the successes that have been demonstrated in the gas sector. We need to scrutinize the devil in the detail of our rate structures so that we actually are signaling the marginal cost of new generation to customers and that the customers see the full benefit of a reduction that they would make that corresponds to the savings in the system. One example would be that right now line losses, which can be quite high on peak days—this summer we saw a lot of electricity just wasted on the lines getting the power down. Because it's a square law, with the amount of current on those peak days, a lot of energy is consumed. It's being charged back to the customer on an even basis across the board, so it doesn't reflect that peak load. There's no signal to customers to invest in ways of offloading the peak demand periods. I think that's been alluded to in previous presentations.

We need to have some oversight in developing protocols on how you evaluate energy savings if there is going to be an allocation of credits. You've mentioned the emissions trading, but any number of issues, like the formulas for Enbridge's DSM efforts, need to have ways of evaluating the actual savings that are being created by the measures undertaken.

We need to maintain minimum performance standards which create a level basis—I'll call it a basement of performance—across an industrial sector. We need support in the way of education. We need a lot of engineering and other skill sets provided in this area. Much as we have invested in information technology, energy efficiency likewise needs that kind of support and curriculum development.

We need to see leadership in the form of government taking on best practices in its own energy portfolio. We need market rules and guidelines that recognize the value of conservation. Right now, we have a ban on local distribution utilities being able to buy green power within their standard supply offering.

All of these opportunities of government permitting—these are not high-capital-cost or intrusive market interventions. These are simply enabling methods to start breaking some of the barriers down that prevent us from realizing these most cost-effective opportunities.

In closing, we're confident in our claims that the transformation to a green energy future is demonstrably practicable, affordable and must rest first and foremost on energy efficiency. Thank you.

1340

**The Chair:** Thank you very much for your presentation. We're down to less than 30 seconds per caucus. If you would like to make a quick comment or question, you will have to be super quick.

**Mr. O'Toole:** Thank you very much for your informative input. Many of the same observations are now beginning to form a pattern. Sustainability has a lot to do with having regard for not just the output but the actual marketplace itself. Some of the conditions you're referring to have been reinforced a couple of times. I appreciate your input. If we were to implement one of the several recommendations you've outlined, which would you put the most emphasis on?

**Mr. Poch:** I agree with the last speaker. The top two are that the OEB transfer its lessons learned on the gas side to create an incentive for the electric utilities to do DSM, and then the second one would be a renewable portfolio standard.

**Mr. Bradley:** It was a great presentation. There are a lot of good ideas in here. Just to go quickly to the one on which you place a lot of emphasis, what could possibly be the reason that they would not apply that to the electricity sector? What reasons would they possibly advance not to do so?

**Mr. Poch:** I think the short answer is they're just waiting for a cue from the government. This is a board that's appointed, like any other board, and is in its act explicitly required to take its cue on policy with respect to energy efficiency from government policy. It's spelled out in the act. They were more polite this morning than I'm being perhaps. They are just waiting to hear, "Do you want us to go with this or not?" It's that simple.

**Ms. Churley:** I wanted to ask you about rates. I've been raising with others this morning the externalities that aren't factored into rates on the fossil fuel side, yet you have a problem in getting off the ground a lot with alternative energy. What do we do to start turning that around?

**Mr. Allen:** Obviously it's very unpopular these days to create subsidies, but in fact the subsidies that have been extant for many years in the oil patch and in nuclear operations have been extremely large, generous and almost intractable. The right answer would be to extract governments from the biasing of the playing field to enable fossil fuel explorations and nuclear expansion ambitions, but for a variety of reasons we have a very entrenched relationship between governance and corporate interests in that scale.

The answer is, is there a will of this government to recognize and do all that it can within its budgetary constraints to overcome the enormously biased situation in conventional energy supply that we've now deemed harmful to our health and to enable the transformation to take place as economically as we can as a society?

**The Chair:** Thank you for your presentation. It's much appreciated. Time has run out on us, unfortunately. Thanks for coming.

#### CANADIAN RENEWABLE FUELS ASSOCIATION

**The Chair:** Our next presentation—we gave a little false alarm there earlier—is from the Canadian Renewable Fuels Association, Mr Bliss Baker, president.

**Mr Bliss Baker:** My name is Bliss Baker and I'm the president of the Canadian Renewable Fuels Association. The wind turbines were a great addition. I would have brought samples as well but it probably would have changed the tone of our discussion this afternoon. We represent the ethanol and biodiesel producers and marketers and agricultural interests in Ontario that have a stake in the renewable fuels industry in Canada but certainly in Ontario.

These committee meetings today, yesterday and the day before are very timely. In case you've forgotten, we've just come out of the longest string of smog advisories this province has ever seen. Many of you from rural parts of Ontario know that this is no longer a Toronto problem, it's no longer a GTA problem. In fact, a number of times this summer I recall seeing Parry Sound and cottage country as having the worst air quality index in the province. So this is no longer a GTA or Toronto problem, as I think we all know. I'm sure this is unacceptable to you, I know it's unacceptable to me, and I know from our polling that it's unacceptable to the vast majority of Ontarians.

I can tell you that our members certainly appreciate the intentions of the committee here today and the government's intentions with this committee, and we welcome the opportunity to provide you with some insight into a very rapidly changing and exciting industry, not only in Ontario and Canada but around the world today.

I take every opportunity I can to tell people, when I speak to them about renewables, that we have an opportunity today. Again, it's timely. We have an opportunity to capitalize on some conditions right now, both economic conditions, with high gas prices, and environmental conditions. We have unprecedented political support for some of these issues today and unprecedented popular support from the public to support things like renewable fuels. I think we owe it to ourselves to take advantage of the conditions that are out there today and build an industry, not only an industry that can alleviate some of our air quality issues but something that can employ hundreds and hundreds of Ontarians and build a real industry in Ontario.

I want to spend most of my time focussing on ethanol because my colleague Tim Haig will join us shortly to talk about biodiesel and some of the opportunities the province has to capitalize on this fuel that's new to Ontario but certainly not new to different parts of the world. Biodiesel has been running vehicles, buses and cars in Europe for years, and the Americans right now are building a huge industry south of the border, rolling out fleets and buses running on blends of 20% biodiesel, ethanol-blended diesel and renewable fuels. This is not pie-in-the-sky stuff. This has been around for years in many jurisdictions and I think it's incumbent upon all of us to take advantage of it here in Ontario. Without stealing too much of Tim's thunder, I can tell you that the emission reductions from biodiesel are unquestionable, and the benefit to farmers and rural economies is real.

Now I want to take a minute to talk about ethanol. The ethanol industry has changed dramatically in 20 years. We were first introduced to ethanol as gasohol in the late 1970s. Back then it was not cost-competitive. There were a number of questions around ethanol. But today we have an industry in Canada that's poised for some significant growth, particularly with the right conditions and the right leadership. I think by 2005 we will see the industry in Canada top a billion litres, much of that coming from corn from southwestern and eastern Ontario. In a typical blend of 10% ethanol mixed with gasoline, that means that by 2005 we'll be cleaning up 10 billion litres of gasoline.

For those of you who are not familiar with the way ethanol works, ethanol is an oxygenate. It's made of 35% oxygen, and when you add it to gasoline it encourages and promotes a cleaner and more effective combustion, thereby reducing harmful emissions of GHGs—greenhouse gases—and other harmful pollutants. Without getting into too much technical detail, I can provide you with all the studies you like, if you wish. A 10% blend of ethanol can reduce carbon dioxide by up to 10%. It also is a net reducer of ozone-causing emissions. For those of you who are not familiar with the way smog is created, there are a number of compounds such as carbon monoxide, benzene and unburned hydrocarbons that go into creating ground-level ozone, thereby creating smog. Study after study has shown that ethanol reduces carbon monoxide significantly. There is also a net reduction in ozone formation.

The environmental benefits, in my view, are unquestionable. Study after study has shown that it does reduce emissions. Are there better sources of GHG reductions? Absolutely. My colleague Tim Haig will probably tell you that biodiesel is one of them, but ethanol can be and should be part of the solution to meeting our climate change challenges.

More importantly, we've seen that in other jurisdictions, particularly in the US, they are being very aggressive in creating an industry. The American Lung Association has credited ethanol with reducing smog-forming emissions in Chicago by 25% since 1990. They have seen the benefits of cleaner air for 10 years now in Chicago with reformulated gasoline and ethanol in gasoline.

**1350**

Today in Ontario we've put about 15 million bushels of corn into ethanol, primarily through the Chatham ethanol refinery and the Tiverton plant. A third refinery is going to be built in Cornwall any day now. I understand they've got their financing in place. That's the good news. The bad news is that it took the co-op in Cornwall nine years to get financing to build that plant, and they had to go to Europe to get that financing. It also took the Chatham plant several years to get the financing in place to build their plant. Several other projects, I know, have died because they couldn't find the right conditions or the right financing and access to capital to build refineries. The province does deserve some credit



for seeing some of these plants through to fruition and making them happen. However, it would have been significantly easier had the province had a very clear, specific strategy with respect to renewable fuels, one that fostered technological development, and one that had, in this area, worked to minimize the risk for financing and created venture capital pools dedicated to this sector.

Not to harp on the US, but south of the border that industry now employs tens of thousands of people. There are some 30-odd refineries on the drawing board, another 50 or 60 in operation right now, and they will produce five billion gallons of ethanol at record production this year. A lot of that has to do with political leadership. There's something called the Governors' Ethanol Coalition in the United States with over 25 governors who are active members. The Premier of Quebec is a member, and the province of Quebec is very active in trying to promote an industry in Quebec. They're very new to this, but they're active and they're taking part.

Their strategy south of the border includes a variety of things. Some of them are direct subsidies—not something that we're coming out and advocating today—but R&D incentives, tax incentives, and innovative programs that support the use of specific feed stocks, like corn and soybeans, are all part of their ethanol and renewable fuel strategy south of the border.

In Ontario, of course, we benefit from some specific tax treatment. Ethanol, when blended in gasoline, is exempt from the excise tax federally and the road tax provincially, as are propane and natural gas. We believe that tax treatment should be extended to diesel fuel. It's the dirtiest fuel on the road, and right now, when you blend ethanol or biodiesel into diesel fuel, it's taxed as if it's a gasoline. We think that treatment should be extended to renewable additives to diesel fuel, which would make a significant impact in kick-starting the biodiesel industry in Ontario, not to mention reducing harmful emissions significantly. Studies south of the border have shown—a recent study released this year—that these types of tax treatments are returned to treasury in excess of twofold in terms of jobs and new tax revenue for the government.

I'll try to cut it a little short so that we can leave time for questions, but if you remember nothing else, there are a couple things I'd like to leave you with.

First, ethanol and biodiesel production means rural jobs. Eighty percent of revenue from an ethanol plant is spent within a 150-kilometre radius. So revenue from that plant stays in the local community.

Second, biofuels mean new markets for Ontario grain. Fifteen million bushels of Ontario corn goes into ethanol production in Ontario this year. Five years ago, it was zero.

Third, ethanol production increases commodity prices. Studies in the US have shown that in parts of the US commodity prices have risen as much as 40 cents a bushel for corn because of the demand. In Ontario, I saw a recent study that said it was between seven and 11 cents a bushel in the Chatham area. Those are real benefits,

economic benefits, notwithstanding the environmental benefits.

Fourth, ethanol reduces emissions. That's primarily why we're here today. There are other benefits, of course, that I've just talked about, but the environmental benefits, in my view, are unquestionable. If you have questions with respect to that issue, I can provide recent studies to shed some light on that.

One final word to members today: I don't think supporting renewable fuels has to be about direct subsidies or handouts. That's not why we're here today. But I do think, with the proper incentives in place, such as venture capital pools, R&D programs and a clear commitment to a tax regime that encourages renewable fuels rather than discourages them, we can build a thriving industry in Ontario that not only employs people, but one that will leave a cleaner and greener future for generations to come.

Thank you, and I'll be happy to answer some questions.

**The Chair:** Thank you. We have approximately two minutes per caucus, starting with the Liberals, the official opposition.

**Mr Parsons:** I'm intrigued, because I quite agree with you that ethanol has so many positives to it and yet I see only one company using it. What is the obstacle to the others? Is it lack of production facilities at this stage? To me, it would be a tremendous marketing approach.

**Mr Baker:** You're talking about the gasoline retailers markets. You're right. When you say one, I'm assuming you mean Sunoco.

**Mr Parsons:** Yes, and associated companies.

**Mr Baker:** That's right, yes. Sunoco is one of them. They've certainly been leaders in Ontario. All of their gasoline has ethanol in it, a blend of up to 10%, and sold at a regular price. Their regular gasoline competes with Petro-Canada and Esso, as do their mid grades and high-octane fuels. UPI and MacEwen Fuels are others that also are very big leaders in Ontario in this area.

The previous speaker mentioned market obstacles. There are obstacles. One of them is the learning curve. There are oil companies out there today that still think that ethanol is not cost competitive, which is wrong. Twenty years ago that was the case; maybe even 10 years ago that was the case. It's not any longer. With high gasoline prices and efficient refineries like the one in Chatham, they are very cost competitive. So there's a learning curve.

There are new companies coming on board. Next year, Petro-Canada will start selling ethanol-blended fuels in every station in Quebec. That's not in Ontario yet because the supply is not there. But there are market obstacles. There's a learning curve but there are also refinery issues that they have to deal with in blending their ethanol. They have to make a business decision to do it. We can't convince them to do that. What we can do is convince them that this is a green product and with some leadership at the provincial and federal levels, all jurisdictions, it will come.

**Ms Churley:** Are you familiar with—I presume you are—the Minnesota program?

**Mr Baker:** Yes.

**Ms Churley:** It's probably one of the most studied because of the state involvement in that. I wonder if you support the state involvement there. The second part to that question is that I understand there's some concern that despite the support of the state, the ethanol program might be in some jeopardy because of rising corn prices and lower prices for ethanol. Can you comment on that?

**Mr Baker:** Yes. Two things: I had the great pleasure in early July to meet with Governor Ventura, which was an experience.

**Ms Churley:** That's another story.

**Mr Baker:** It is. We talked at length about the Minnesota model. One of the challenges with mandating oxygen requirement in gasoline or biodiesel requirements in diesel fuel is that I don't believe we can do this without the oil companies. We can't do it without them. I'm not going to be an apologist for the oil companies, because they have taken their shots at us, obviously, but we need to do this together. I think it requires some leadership. We're trying to do our bit to convince them that ethanol is a viable product and one that they can actually make money on. In Minnesota they've gone to lengths to mandate a certain oxygen requirement in gasoline and also to mandate biodiesel. We're not convinced that's the way to go unless we have willing partners. Let's put it that way.

With respect to corn prices, they are still at an all-time low. You talk to any farmer in the Midwest and particularly in southwestern Ontario and they are up. Ethanol has had something to do with that, but they are still at an all-time low. It's not going to put ethanol refineries out of business.

**Mr Ouellette:** Thank you for your presentation. Earlier on you mentioned that it was just the ethanol and the biodiesel that are members of your association. Are those all that you're affiliated with?

**Mr Baker:** No, we have a number of agricultural groups. For example, the Ontario corn producers, the Quebec corn producers, Quebec agricultural interests, wheat producers from Manitoba, canola development corporations from Saskatchewan, a number of agricultural interests. We also have industry partners: Delta tea, engineering firms, a number of stakeholders from agriculture right up to ethanol producers like commercial alcohol. It's a broad range.

**Mr Ouellette:** You mentioned the increase of about 11 cents a bushel for corn in Ontario, but yesterday in Ottawa we heard that it was mostly cobs and stalks that were utilized in ethanol production. Are we adding more value to the actual crop or is it a per bushel increase on the kernel as well?

1400

**Mr Baker:** I think what you're talking about is using some of the waste corn stover. Is that so? There's a company in Ottawa called Iogen Corp that you may have met with yesterday. They are world leaders in developing

enzyme technology that will make ethanol from agricultural waste products like corn stover and wheat grass and things like that. That is certainly the future of ethanol. They are active members of ours and we certainly see that that's the way the industry is headed.

**Mr Ouellette:** So most of the production now is based on the use of the kernel.

**Mr Baker:** Exactly, the actual kernel. That's right. In Ontario it's strictly the kernel of corn. In western Canada they use wheat and barley.

**Mr Ouellette:** That's something I didn't realize.

**The Chair:** Thank you very much for your presentation and thanks for all the literature you've left behind here.

## BIOX CORP

**The Chair:** Our next presenter is Biox Corp, Mr Tim Haig, President and CEO. Just while you're getting organized there, when you do get ready to roll, just state your name for the sake of Hansard. You have a total of 20 minutes for your presentation and also receiving some questions from the three parties.

**Mr Tim Haig:** While this thing is charging up, can I just draw your attention to a blue folder which should probably be circulated. There are a few handouts in that. On the left you'll see the slides from the presentation. On the right-hand side there is a document that was developed by the National Renewable Energy Laboratory in the States which we are Canadianizing through the use of NRC in Ottawa.

My name is Tim Haig. Beside me is Dr Gord Surgeoner. He's from Ontario Agri-food Technologies.

What we have here is a very interesting industry which is at the early stages of development within Canada. It is not a fringe overseas. I'd like to point out that 5% of France's fuel as a country is biodiesel. Things have been legislated in the States. Minnesota has legislated that 2% of their consumption as a state will be biodiesel.

I'd like to just talk about biodiesel as an industry. I will highlight some things about Biox as a company, but I'm more interested in getting the idea of biodiesel as an industry understood.

The first thing you'll see is a quote which I understand you also saw on Monday. It is from Rudolf Diesel, surprisingly enough, the guy who invented the diesel engine. He's quoted as saying, "The use of vegetable oil as fuel might seem of no importance in our time. However, such products can gain importance in the course of time and reach an equal status compared with today's petroleum and these coal-tar products." He actually developed the diesel to run on vegetable oil. We are now getting back to the point where we can run it back on a cleaner fuel, which is diesel.

My presentation will be as follows: I'll describe what biodiesel is, I will describe who benefits from the biodiesel industry, who Biox is as a company, what are the market drivers that we're looking at, what we need from



the Ontario government specifically, and then what Ontario gets in return.

First, biodiesel is to diesel what ethanol is to gasoline. We are the clean alternative to mix with the fuel. We are a liquid fuel made from vegetable oils and/or animal fats. In simple terms, because I won't bore you with the chemistry of it, all we're doing is reducing the viscosity of a very good molecule in the first place. It retains the same combustibility as vegetable oil has or animal fats have but it reduces the viscosity and it works within the diesel engine exactly as diesel fuel does. There are no changes to a diesel engine required. You can run it 100% neat or in a mix. I expect it will be like ethanol, as Bliss highlighted in the last presentation. It will likely be run as a mixed fuel—10%, 20%, 5%, even 2%.

It is not an energy-intensive process. Therefore, we get far more energy back than is actually consumed in it, so it is truly a clean alternative.

Biox is a new technology which I will highlight. It is set to change the economics of biodiesel production, and it's an Ontario homegrown technology.

First, who benefits from the biodiesel industry? First and foremost, like the ethanol industry, most of the money, 95% of the money, will stay within 100 miles of a plant. These are going to be locally generated plants. Also, what's important right now is that there has been a lot of flux on the oil side of the industry. Unlike the starch side, which is associated with ethanol, the oil side has been under great attack. So it enhances and stabilizes agriculturally.

Biodiesel is a huge reducer of urban smog, which I will explain, and global warming. We reduce greenhouse gases.

Quickly highlighting what Biox is: Biox is a technology that was developed by the University of Toronto chemical engineering department and bought by a company called Madison Ventures. We are taking this thing to the market. Other contributors to funding so far have been IRAP and TEAM, which are federal. CanAdapt—the Canadian agricultural adaptation program—with support from OMAFRA, has also helped fund us. Notwithstanding, there has been great support from three other major stakeholders: Rothsay recycling, a rendering company owned by Maple Leaf Foods, which is a real proponent of biodiesel, and Ron Wardrop is here to answer any questions that may be associated with rendering; Ontario Soybean Growers has given us all the soybean oil we need to change into biodiesel; and Trimac Transportation, one of Canada's largest trucking companies, has been supporting us with both technology and a location. We have a pilot plant running in Oakville.

When a plant grows, it consumes CO<sub>2</sub>. You use or extract the oil and/or the meal from that plant, you feed it to a cow or whatever, and eventually it comes back in waste or used oil. We put it through a process called transesterification. That simply is cracking the viscous end of that molecule off. The viscous end of that molecule is actually glycerol. So one of the by-products of the process is glycerol, which is a very value-added

commodity. It's in every single cosmetic thing you want to look at. We create biodiesel. Along comes a truck, or whatever you want, to use that biodiesel. In so doing, it produces exhaust, the majority of which is CO<sub>2</sub>. We also have issues which reduce smog. I'd like to highlight two of those as we go forward.

The first thing is greenhouse gas. For every unit—let's say a kilogram—of biodiesel that we displace from diesel, we reduce the load on the world's atmosphere in CO<sub>2</sub> by three kilograms. Ethanol is a very good fuel, but in comparison ethanol is less than 0.5 kilogram—and I'm not trying to reduce the importance of ethanol. So we are six times more greenhouse gas friendly than ethanol in comparison. I apologize to the previous speaker, Bliss, who is a friend of mine, but I just had to highlight that. He's smiling, anyway.

The other important thing is what is called smog. As Bliss pointed out, there are three smog precursors: NO<sub>x</sub>, SO<sub>x</sub>, and particulates. NO<sub>x</sub> are oxides of nitrogen, SO<sub>x</sub> oxides of sulphur, and particulates are exactly what they are. By the year 2006, we have to reduce from low-sulphur diesel to ultra-low-sulphur diesel. The problem with that for diesel engines is that you lose that lubricity. It's the same argument that went on when we were losing lead from gasoline. The good thing is that you can get all that lubricity back by adding just 2% of biodiesel, and it is a fuel. You would have to add 2% of an additive anyway. But if we could use biodiesel, which is a fuel, it adds that back to that.

Particulate reduction is the same argument as ethanol. It is 35% bioxygen, and it burns more completely. With a 20% blend biodiesel, you will not see that black puff or belch of smoke you see from a truck pulling away. That will be gone, and that is categorically stated.

Unfortunately biodiesel does not add any benefit to the reduction of NO<sub>x</sub>, or oxides of nitrogen, but diesel engine manufacturers are pushing very hard to get that under way with post-combustion. I just want to highlight that every single diesel engine manufacturer has warranted the use of biodiesel in their engines. This is not a fringe as far as they're concerned.

If I graphically state exactly what I said before, it makes it a little bit more clear. Further reduction—there is no sulphur in biodiesel, so by displacing sulphur with biodiesel you get a linear relationship between the two. When you look at the particulates on the far right of the slide you're looking at, we get a huge reduction in particulates, even with a 20% blend.

#### 1410

Other market drivers: there is a real need to lessen our dependence on fossil oils—that's why we're here—and there are legislated changes to do so. I highlight that we are on an unlevel playing field with the biodiesel industry in the States. The States is giving biodiesel producers US\$1.20 per US gallon. That is a gift; that is not a tax incentive. That is, "You produce it; we give it to you." The situation is, we need a level playing field in this country. The biodiesel market and the actual ASTM standard is very well established—ASTM is the Ameri-

can Society for Testing and Materials. This standard is very likely to be adopted in Canada, but it's a very high standard.

I'd like to highlight one thing: the safety and toxicity. There's a great quote from the national research lab in the States, which says biodiesel is as biodegradable as sugar, which is one of the most biodegradable things you can have, and 10 times less toxic than table salt, which we all know is fairly benign, judging from the way I use table salt.

The other thing is biodegradation, which is important. If you blended it at a B-20 blend, 20% biodiesel and 80% diesel, and you were to spill it—God forbid you would, but it does happen—it would biodegrade in a third of the time that diesel would degrade in the first place, the reason being that bacteria live very well on biodiesel as they consume diesel. Up to now—and this is the shameless promote of Biox—the cost of production of biodiesel has been upside down. We have a very cost-effective technology that we're bringing to market.

I'd like to highlight another marketing driver, the rendering industry. The rendering industry is part of the industry that recycles carcasses and that kind of aspect. It's not a glamorous industry but it's extremely important to the cattlemen society. As you probably well know, profits have been severely compromised, and without a strong rendering industry, the whole meat industry of the country is very compromised, and we can talk to that at the end.

The soybean industry is also under attack. There's a huge US influx of soybeans; Brazil is the largest producer of soybeans. And there's a glut of palm oil on the market. We need alternative uses, and biodiesel is a clear alternative use.

What do we need from the Ontario government? We need tax parity—we're not asking for anything else—with ethanol, compressed natural gas, propane, all these other fuels that are getting favourable treatment when talking about the provincial road tax. We would like the same parity. That's all we're asking for, to be treated the same as these other fine fuels.

We are now talking at the federal level. We believe the excise tax is being considered this fall. We have every reason to believe, by talking to environment, agriculture and everything federally, that the excise tax will be waived in the same way as with ethanol and these other renewable fuels.

What does Ontario get in return? First and foremost, rural development; secondly, we get a more stable agricultural market, which is very important right now; we get a reduction in urban smog—diesel is categorically a contributor to urban smog, and biodiesel will be a reducer thereof. Global warming reduction—you can't open a paper now without having some headline on that.

I'm asking for a level playing field. We want to have a new industry, and we have a home-grown technology that we need Ontario to recognize and give us the same parity. That's all we need and we will be underway. With that, I'll open it up for questions.

**The Vice-Chair:** Thank you very much. That leaves us with about two and a half minutes per caucus. Ms Churley, you're first this time.

**Ms Churley:** Thank you very much for your presentation. I was watching you while your competitors—

**Mr Haig:** We're not competitors, no.

**Ms Churley:** The thing I want to ask you about is, we heard yesterday in London and Ottawa from both sources, and I'm wondering how you're working together. I presume you're saying there's room in the market for all of you.

**Mr Haig:** No question, and it's really important to understand and get very clear that we are to diesel what ethanol is to gasoline. We are the healthy alternative to diesel fuel. We are not competing with ethanol. Ethanol is a completely different fuel. Gord, do you want to speak to that?

**Dr Gord Surgeoner:** We're the trucks and buses; the other guys are the cars.

**Ms Churley:** That's a good way to put it. For the lay person, I think it's really important to make that distinction.

You just outlined what you want. You want fairness in the tax system. What about other jurisdictions? Have you looked, for instance, at the US? What else can you suggest we do?

**Mr Haig:** The US has already given a tax break in a cash handout for \$1.20 a gallon produced. It equals quite a bit more than what we're asking for from the province and federally. They're already getting it. Australia gets 100% tax relief on biodiesel produced and Europe gets a 100% tax relief on biodiesel produced. We are behind.

**Ms Churley:** Why are you asking for less, then? Do you think you can't get it, or do you honestly believe that if you get that much it'll be the boost that you need?

**Mr Haig:** I do believe it. One reason is that the Biox process is that much more cost-effective than our competition. There are some very good technologies out of Austria and they're about three times more operations-cost-per-litre than ours is. I believe we could get thing going. I also don't want to ask anybody to reinvent the wheel. We'd like to get this thing going quickly. So getting just tax parity seems to me to be an easy way to get started. It's not asking to rewrite anything; just be inclusive of diesel in the same way that we are inclusive of gasoline. That's all we're saying.

**Dr Surgeoner:** A quick comment from the farm community, which I represent: I want to emphasize—and we thank you—the government of this province, and federally, gave the farmers of Ontario \$105 million. They don't like to be on the dole. They want markets for what they produce. We believe that biodiesel, through animal rendering, through corn oil, soybean oil, can help alleviate our market stress, because all around the world other governments are subsidizing farmers. The way we look at this is, here is a market for us, as rural Ontarian farmers, to help the smog problem of downtown Toronto, and we can do so with Canadian technology and help our rural sectors and help the people of Toronto. To me, it makes a lot of sense.



**Mr Ouellette:** Thank you for your presentation. In defence of Mr Baker, is diesel six times more polluting?

**Mr Haig:** With respect to greenhouse gas, yes, it is. With respect to CO<sub>2</sub>—

**Mr Ouellette:** So proportionately—

**Mr Haig:** Proportionately, but let me put it the other way: we're just that much cleaner. They're much cleaner than gasoline. We're just that much better in the same volumes.

**Mr Ouellette:** I think you've targeted on one of the key things that I hope to see as a result, something I've been pushing for for a couple of years: set policies within the ministry for establishing new fuels. What are the feds telling you in regard to the tax break, or have you spoken with the feds?

**Mr Haig:** Absolutely. We've been speaking to the three areas that are very interested in this. Obviously, agriculture; this is a huge win for agriculture.

**Mr Ouellette:** So they said they would continue on or they're going to give you the tax credit?

**Mr Haig:** They've given us every indication. It's never over till it's over, sort of thing. They want a chicken-and-egg situation. We're asking them to take the leadership role on the excise tax and we're also asking Ontario to take the leadership role on this sort of thing.

**Mr Ouellette:** One of my concerns is that it's going to be specific for the biodiesel.

**Mr Haig:** No, we're not asking for that. We're asking for it to be—

**Mr Ouellette:** What I'm seeing, because I've been working on the issue of fuel for two years now and fighting with about five or six different ministries on the same issue—I feel they're all playing ping-pong and passing it back and forth. Everyone is afraid to make a decision on that issue, what the impact is going to be. What should be the lead ministry, in your eyes, or which one has been the lead one you've been dealing with?

**Mr Haig:** I think it's both environmental and agriculture. Mr Anderson has indicated that he would do this and Mr Vanclief has indicated they would do it also. There's a joint task force between the two looking at the excise tax and, as they say, they can't see any reason why we wouldn't get the excise tax for renewable fuels mixed with diesel fuel.

**Mr Ouellette:** So once you've got those two approvals, won't you have to go to finance to get the final—

**Mr Haig:** Absolutely, and we're handling that also. That is being discussed. Obviously finance has the last say but, let's face it, our environment, in the last few papers, has been highlighted as the third most important thing that's in front of a taxpayer right now. So I believe it'll be there. We're not asking for a lot. It's not a large investment. It's just an investment.

**Mr Parsons:** Your costing is based partly on animal fats from rendering plants. Is it based on buying it or simply obtaining it?

**Mr Haig:** Our partners in this thing would be the renderers. Obviously they need to cover their costs and

make a profit on the animal fat, so our costing has included a living and a profit element with them, getting them back to where their numbers used to be. They've got to be a profitable industry for the cattle to be a good industry.

**Mr Parsons:** It's not a very pleasant topic, but the major issue facing rural Ontario is dead livestock.

**Dr Surgeoner:** And that's one of the key things. Each week in this province basically a SkyDomeful of dead animals is created, and if we don't have markets for the rendered products of those animals, then we're not going to have renderers, and then we'll have a far greater tax problem and environmental problem. So here's one where we can solve two problems at once.

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**Mr Parsons:** So it would make it viable, then, for firms to go and collect dead livestock?

**Dr Surgeoner:** That's correct.

**Mr Haig:** Absolutely.

**Mr Bradley:** We have to be a bit skeptical when we're here. I said at the beginning of this committee that we would have a lot of people coming before us with what I refer to as the "magic box." I think the committee has already had some magic boxes before it.

Who would be the final arbiter? Where would we go to determine who is selling us a bill of goods and who is selling us something that is viable, and what is the best? We're probably going to have to make some choices in this committee as to what's going to be the best, what should receive a government incentive one way or the other, so who is the final arbiter of this? We're lay people here. Who out there is the—is it some national or international firm?

**Dr Surgeoner:** I guess the first thing I would emphasize is that if you look at all the statistics—here's the US Department of Energy and the US Department of Agriculture. I think they are a reliable source in all of the energy reductions. The USDA has done lots of studies on what it's going to do for the rendering costs and things like that.

If you look elsewhere around the world, in Europe, the US, Australia, all those other nations are investing in this very technology. Most important to me is that it's a Canadian-invented technology that's ahead of the game, and we're going to lose it to the US if we don't start investing in it. So I think the marketplace in many ways is showing you that in other countries of the world, and then you have independent studies from other countries as well, and we will have one from the National Research Council as well.

**Mr Bradley:** I'm very interested in that, yes. Thank you.

**The Vice-Chair:** Thank you very much, gentlemen. Is the Citizens for Public Justice group here? No?

#### HALSALL ASSOCIATES

**The Vice-Chair:** The next group is Halsall Associates.

**Mr Paul Hanratty:** Good afternoon, ladies and gentlemen. My name is Paul Hanratty. I'm with a Toronto-founded firm, Halsall Associates. We're a firm of engineers and consultants founded in 1956. We're an employee-owned company, and our focus is in engineering in buildings, both in the built environment and in new construction. We operate primarily in Canada, but in high-profile projects we're asked to get involved, particularly relevant to building-envelope issues around the world. We're currently doing projects like the Smithsonian and the Sears Tower in Chicago.

We have a number of services that we offer in buildings, but what we're going to focus on today is that we have been involved in the design, construction, destruction, repair and replacement of thousands of building envelopes or building cladding systems over the last 40 years. We bring a breadth of experience in building-component issues to what we're going to talk about today, which is solar photovoltaic in the built and building environment and how we integrate that to the buildings we have and the buildings we're about to build.

Our mission statement on sustainability is to foster an understanding and acceptance of sustainable issues among our staff and clients, to adopt a holistic design approach and life cycle thinking, to demonstrate economic viability of sustainable development, and to lead in the implementation of sustainable technology in the built environment, the built environment being the buildings that are up now rather than what we're going to be building in the future.

Today I'm going to speak about the deployment of building-integrated photovoltaics in new construction as well as the built environment, and outline ways that Ontario's participation in public-private partnerships will increase the likelihood that this province can take a leading role in the manufacture and deployment of solar electric building components around the world.

Photovoltaic solar energy first came to the forefront approximately 40 years ago with NASA's fledgling satellite program. At that time, the cost to generate solar electricity was \$1,000 per watt. There was a tenfold decrease over the following 10 or 12 years and again through the 1980s, to the point where the cost to produce a watt of power from photovoltaic cells is now approximately \$3 to \$6. If NASA had had an electrical cord long enough to go back to Houston from the satellite, our industry may not have been born. They have been the primary drivers in moving this technology forward over the last 40 years.

Building-integrated photovoltaic or photovoltaic solar cells have a number of sustainability benefits, including no raw material inputs to produce electricity. If you take all the fossil fuels burned on the globe every day, the sun provides us with 14,000 times that amount of energy, which we use a very small part of. There are no greenhouse gas emissions from photovoltaic-generated electricity, there are no noise emissions, no moving parts and no real estate or site development costs. What I mean by real estate or site development costs is that you have a

building already. If you're going to be building the building, why not build the walls, roofs, skylights and windows etc encompassing photovoltaic technology?

The true definition of sustainability is something that consumes less energy in their lifetime than what they will produce over time, and photovoltaic is very unique in that manner in that it does. The types of applications we're currently working on integrating photovoltaics in buildings are in the walls, roofs, skylights, windows and sunshades, of which every building has one or more.

There have been great advances in the photovoltaic industry throughout the world. This is an example of a building in Austria, privately constructed, to demonstrate the opportunities for high-comfort, low-energy building.

This is a Belgian application: a new cafeteria complex incorporating semi-transparent photovoltaic systems, one for shading and one for glazing. The overall peak power from this small array is 23 kilowatts.

There is EMPA, the Swiss federal laboratories for material testing and research, featuring parapet walls and shading elements throughout the building that generate electricity for the building.

Here is a Japanese model of integrating photovoltaic cells to produce power for the building. This is a roof that was constructed from photovoltaic which produces three and a half kilowatts of power for that building.

In all the buildings I'm showing they're not only building-integrated but are net-metered and grid-connected. Obviously the major disadvantage of photovoltaic is that it doesn't produce electricity when the sun is not shining, so in essence we have to use the electrical grid as our battery pack for night consumptions.

This is a kindergarten building that was built in Frankfurt, Germany, out of PV modules as a geometric element in an open and transparent building. It's an excellent example of building-integrated photovoltaic that doubles as building component and fulfills the technical requirement of power production.

PV is a more economical source of electricity in many parts of the world because it replaces the huge infrastructure spending required on building large power plants and transmission lines. Therefore, to deploy small photovoltaic arrays in developing countries is very simple and easy to do at a very low cost. It's cost-effective for the governments of those countries to take advantage of it.

It's also commercially viable in many parts of Canada. It's used in remote areas for powering cottages, for powering weather stations, for powering remote communications infrastructure. Other areas where you'll see photovoltaic in the city that's used every day is in watches, calculators, illuminated highway signs, parking meters, off-grid cottages, in agriculture for pumping water etc.

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The annual market growth in photovoltaic since 1990 is quite staggering. From 1990 to 1999, the global photovoltaic market grew by a factor of 25% each year.



In 2000 that grew 40%; in 2001, 42%; and we anticipate in 2002 the growth in the market will be 45%.

Photovoltaic makes too much sense for it to be ignored as an option of renewable energy for buildings. Photovoltaic produces electricity for use at the source to feed the electrical grid. This significantly reduces transmission losses that are apparent with most other forms of generated energy. Photovoltaic does not emit greenhouse gases or other pollutants of any kind.

Here's another example of a photovoltaic building that produces 128 kilowatts of power. It's a bank in Switzerland. This particular building utilizes a number of sustainable systems, such as thermal, solar power, natural daylighting technologies and grey water utilization. The majority of the photovoltaic on this building is actually on the roof. There's 100 kilowatts of it on the roof of the building, which incidentally is one of the more economical ways of deploying photovoltaic currently.

Here's an example of employment of photovoltaic in the Netherlands in an environmental education centre featuring glass corridors. The solar modules combine three functions in one element—building cladding, producer of electricity and shading element—making this type of application ideal for atria and sun spaces in many different forms of buildings.

The advantages of building integrated photovoltaic are that they serve a dual role of power plant and building cladding material. The real estate for them, as we stated earlier, is free and there are minimal site development costs. There will be no incremental costs for the development of areas to produce this because obviously you're constructing your building from photovoltaic arrays. The grid acts as a battery to ensure 24-hour power.

The public relations value of photovoltaic is enormous. Any organization incorporating photovoltaic into a building is providing a highly visible statement of environmental commitment. This can generate goodwill among customers in the community and in many instances may translate into improved financial performance.

The challenges to the building-integrated photovoltaic industry in Canada are that electrical production is not yet as cheap as by natural fossil fuel sources. A large part of the reason for this is that we don't calculate the environmental and social costs of the pollutants from fossil fuels when calculating the cost of a litre of fuel of any other kind. Widespread public education is needed to change the attitudes and show alternatives to fossil fuel electrical generation.

Demand for photovoltaic is higher than supplies globally and this is probably the most significant factor that affects the viability or the deployment of large-scale photovoltaic around the world. The reason for the high pricing of photovoltaic currently is that global demand for solar cells exceeds global supply. There aren't enough people manufacturing photovoltaic cells globally.

This is a graphic illustration, going back as far as 1980, that illustrates that the more shipments of photo-

voltaic-modules there are, the lower the price goes. As long as demand stays higher than supply, then the price will be stuck between \$3 to \$5 a kilowatt. There are strident efforts in Germany, Japan, Europe and the United States to increase production of photovoltaic cells. One of the world leaders in this technology is a firm whose head office is right here in Ontario called Automated Tooling Systems, or ATS. I believe you heard from them earlier in the week.

We are lagging far behind our G7 partners in the deployment and manufacture of photovoltaics. For instance, in the year 2000, Japan produced 128 megawatts of power from this technology; the United States 75, produced or installed; Europe 61 megawatts. In Canada, it was two megawatts. Our federal government's support is largely responsible for Canada's two-megawatt installation in 2000. Private organizations are now at the stage where they are willing to participate in and contribute to the deployment of this technology. Additional participation by the government of Ontario will significantly accelerate research and deployment of the technology in the coming years that can make us larger users and exporters of this technology.

A stakeholder in photovoltaic technology development in Ontario is, obviously, the Ontario government. The federal government is a significant contributor, to the point where it now has asked us to construct a building-integrated photovoltaic array in Toronto. We will be doing that between now and next March; we hope to have it completed. The purpose of it, as much as generating power, is as an educational tool to raise awareness among the general public that this is another alternate fuel source that makes sense.

Initiatives that Ontario can take to support building-integrated photovoltaic is to participate in public-private partnerships through the development of a Canadian power wall system technology. To do that, we need continued research and development assistance. We need demonstration projects, such as government of Ontario buildings or Ontario-funded buildings, to integrate this technology into their buildings for education purposes. We need to educate the public on the environmental, fiscal and social benefits of using solar photovoltaic. From our perspective as engineers, Canada is renowned globally for our expertise in building tight, efficient buildings in cold-weather environments. We believe that photovoltaic inclusion in these buildings will give us a unique position for future exports of technology and services in this sector.

From Ontario, we would like to see assistance in development of this technology. We would like to see ongoing education of Ontarians on the benefit of clean, renewable energy sources. We know that with further deployment of technology such as this, we will contribute to our Kyoto commitments and we will be able to offer our citizens an alternative source of clean, sustainable energy.

These are the last three examples I'll show you. The top left is the Netherlands, the noise barrier along the

main highway. The solar modules installed along the top half of the barrier produce electricity and noise protection. The electricity produced from these photovoltaic arrays lights the highway. On the bottom left, Georgetown University, installed in 1984, sponsored by the US Department of Energy, produces 300 kilowatts of power on its step roof. On the right, the United Kingdom, funded by the European development fund and the UK Department of Trade and Industry, this is the first speculatively constructed building incorporating photovoltaics and is also one of the largest arrays ever built. It produces 550 kilowatts of power for the building and represents approximately 40% of the building's electrical usage.

To sum up, the Ontario government can lead the way for us to become a world leader in building-integrated photovoltaic for solar energy production. I'll take questions now, if there are any.

**The Vice-Chair:** Thank you very much. Before I hand it over to the government for questions, do you have either a handout or a business card with contact numbers on it?

**Mr Hanratty:** I have a business card. I was going to forward to the clerk a copy of my presentation for distribution. I didn't bring slides.

**The Vice-Chair:** And, curiously, where are you based? I might have missed that.

**Mr Hanratty:** We're based in Toronto. We have offices in Sudbury, Burlington, Ottawa and Windsor.

**Mr Ouellette:** Thank you for your presentation. You mentioned—it was one of the slides that you showed—one of the houses that produced three kilowatts.

**Mr Hanratty:** Yes.

**Mr Ouellette:** You also stated at that time that you would have to use the grid as a battery pack to store the electrical energy in the evenings. How large a grid would you require for a house like that, or is it hooked up to the grid as it is now?

**Mr Hanratty:** It's hooked up to the grid as it is now, and net metering would accommodate that.

**Mr Ouellette:** So for remote locations, say, somebody at a cottage in a remote location, if they weren't hooked up to an already established grid, it wouldn't be something that would be able to be utilized?

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**Mr Hanratty:** In remote locations they use battery packs that are charged during the day, and they use that charge at night.

**Mr Ouellette:** What's the life expectancy of the cells?

**Mr Hanratty:** Of the solar cells?

**Mr Ouellette:** Yes, and how easy are they to replace and/or repair?

**Mr Hanratty:** They're as easy to replace as a pane of glass; they're generally not repairable. It's like a computer chip: when it's broken, it's broken. The manufacturers, such as ATS, that are making these modules right now in France and possibly very soon in Ontario, will guarantee the units for 30 years.

**Mr Ouellette:** Mr Gilchrist.

**Mr Gilchrist:** Very quickly, the question I haven't seen addressed anywhere in the presentations that have been made to us so far about solar is the climatic differences between some of the venues you've shown on your slides and here in Ontario. To what extent, utilizing PVS systems, particularly on the roof, is that feasible in a climate where for an awful lot of the winter you're going to have snow covering those panels, or, by their design, do they tend to heat up enough that they actually melt the snow?

**Mr Hanratty:** You're correct on both. In Canada, snow is an opaque material, so the solar radiation goes through the snow. The photovoltaic cells do heat up as the sun hits them, and the snow tends to run off. If you had huge snowfalls in a specific area on a flat array, it may have to be cleared—

**Mr Gilchrist:** Arrays don't tend to be flat, do they?

**Mr Hanratty:** They don't tend to be flat; they tend to be angled at approximately 30 to 45 degrees. There is an installation at 700 University, OPG's building, that has been there for a couple of years, and there have been none of these problems.

Another question on that was, would atmospheric particulate or pollutants reduce the efficiency of the arrays, and it was found not.

**Mr Parsons:** These will now become part of the structural envelope on the building?

**Mr Hanratty:** Yes.

**Mr Parsons:** How durable are they? Can you walk on them on the roof? Will they take hail and so forth?

**Mr Hanratty:** Yes.

**Mr Parsons:** The second question: I get the impression from your slides that the applications you have used are dealing with custom, architect-designed buildings, not houses. I think Henry Ford, maybe incorrectly, has been given credit for inventing the mass production system, but I'm intrigued by the economics of custom shaping them for each building versus the ability to mass produce one standard shape and simply add it to the outside. Does your cost analysis show that for one unique building, where every panel is perhaps a different shape, it's more economical to custom make it than to do a standard, easily replaceable, snap-in-place panel?

**Mr Hanratty:** That's a very astute observation. In fact, one of the areas where we're encouraging ATS to apply their energies and their resources is to flexible manufacturing to accommodate custom configurations as needed for buildings, to give it architectural merit. There is no such manufacturer currently globally. Photovoltaic manufacturers tend to make standard-sized panels and then leave it to the designers to make them work within an aluminum frame system. ATS is currently looking at that as one of their options for further investment.

**Mr Parsons:** I would be intrigued to follow up on that. My experience with architects is they never want a 90-degree angle.

**Mr Hanratty:** You're absolutely right.

**Mr Parsons:** They never want two panels the same, so I'd like to see how you make out.



**Ms Churley:** Thank you for your presentation. I think it's fair to say that this is a really exciting and growing trend in parts of the world, and we're far behind here in Canada and in Ontario. I fear that if we don't make some of the changes that are necessary, regulatory and otherwise, we're going to get so far behind that we're actually going to lose out on the ability to create jobs—not only to conserve energy but to create jobs. Would you agree with that?

**Mr Hanratty:** I would absolutely agree with it. By establishing a robust photovoltaic industry here, where we can do so very easily, given the private partners who are willing to invest heavily in this, we can have huge social benefit in creating better jobs, in creating an export technology that's purported to be the size of the semiconductor industry right now and that we can use at home, that has the environmental benefits of no pollutants yet generating electricity.

**Ms Churley:** I know you've mentioned different options, but what would be the single thing you'd recommend to this committee to do to help get this industry on the road?

**Mr Hanratty:** I would recommend that the government of Ontario participate in public-private partnerships. We do have the federal government contributing to some extent; we do have municipal levels contributing on a project basis. But for this industry to grow, I think it's critical over the next five years that the government be willing to invest alongside committed private enterprises that are doing so.

**The Vice-Chair:** Thank you, Mr Hanratty, and we look forward to receiving the handout of your presentation.

Is Dr Anderson here? Take your time and make your way up to the front, Dr Anderson.

D.V. ANDERSON

**The Chair:** Please state your name for the sake of Hansard. You have 20 minutes for your presentation and for questions from the respective caucuses.

**Dr D.V. Anderson:** Thank you very much, Mr Chairman.

**The Chair:** Actually, I misled you. As an individual, it's 15 minutes that you have.

**Dr Anderson:** I'll try to stick to that. Thank you very much indeed, Mr Chairman, for inviting me to address you and all the members of the committee. Since it doesn't say on your program, I'm head of an institution none of you will have heard of; it's called Wolfe's University. I'm head of it, as I say. We're located in Toronto. Wolfe's is a small, private university.

As I say in my notes, and I want to emphasize it so I am going to read them, I think the mission of your committee is one of the most important and difficult, in all its ramifications, undertaken by Queen's Park in my lifetime. I've been interested in the subject of your duty for the past 50 years, half a century now, so I wish you extremely well in the discharge of your mission.

The major request I have to put to you is that you tell the people of Ontario, of Canada and of the world what your estimate is, based on the expertise that is available to you, of the length of time that is available to us before the sources of coal, petroleum, gas and uranium are exhausted. This morning Marilyn Churley used the word "finite" in connection with the Union Gas man, and that's a word I wish to emphasize to you. These are all finite resources. The previous speaker had a renewable resource, but we run on non-renewable resources so far, except for the hydraulic energy an earlier speaker spoke about, at the low price of 2.7 cents per kilowatt hour. So that's my first request to you, and the only one if you wish to consider it.

Thirty years ago, when the Arab consortium raised the price of petroleum, everybody on this continent and in Europe flew about to deal with the subject of your committee: solar cells, ethanol, tar shales in the United States, tar sands in Canada. For a period there was a great flurry of activity, and then the Arabs dropped the oil prices and the activity dropped. But it still continues today, as the beautiful little models of windmills show. There's a lot of talk today about ethanol and interesting talk about biodiesel fuel.

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Another question I leave with you is to ask these people to make sure you know, because there has been a good deal of talk and questions from you, about the indirect costs as well as the direct costs, including pollution, of course. I would like to know and would like to have asked them how much it would cost, by way of petroleum or propane, to produce the corn or soybeans to make their renewable resources. I trust and hope they get enough out of the fuel they make to grow the material.

My second major question to you is for the future. In maybe 50 or 100 years from now, but at some point, Madame Churley's "finite" is going to come to pass in Ontario. Ontario hasn't been self-sufficient in food since the war. Where are we going to get our food when petroleum and gas are exhausted? Of course, I'm delighted that you've been set up to answer such questions. I look forward to hearing what you think and what your answers are.

There are two main routes. One is new sources such as the photovoltaic ones. Nuclear energy came out of my trade, physics, 60 years ago; and fusion energy, again out of my trade. We haven't seen it yet, and they've been working for 40 years. So it's a very difficult business sometimes, and in those two cases very difficult and expensive. I hope you'll find a new source.

The second route is to conserve energy. I was very pleased that Mr O'Toole stated that your official position—at least his official position—is that conservation is part of your mandate. I was worried about that, but I take it that's not a worry; you're as concerned with conservation as with everything else.

I have six specific things for you to look at, five of them technical. Twenty years ago, when the oil crisis was on, I invented a scheme to make a synthetic fuel from

hydrogen—electrolyzed water, of course—through nuclear energy or hydraulic energy or sunlight, and carbon dioxide from the atmosphere. Unfortunately I found that my invention had been preceded by the Americans, who had gone much further than I and spelled out all the technical details. I set up a corporation called Methon Energy Corp, and Premier Davis was good enough and interested enough to ask Ontario Hydro to make a feasibility study of Methon. I regret to inform you that Premier Davis, whom I thought all-powerful, as I do Mr Harris today, was totally ignored by Ontario Hydro, who refused to make the feasibility study he requested.

One thing that came from that was the proposition that Wesleyville, which became an abandoned project at that time, into which they had put \$150 million, was available as a trial Methon plant. It might not have come to be, but at least it was available. Incidentally, you should keep in your historical minds that Wesleyville was designed to operate on petroleum—diesel fuel, if you will, heavy stuff. To this day there is a huge cavern out there to act as their gas tank. It was closed down because of the high price of petroleum. To me, Wesleyville is a monument to the 25-year-old crisis you people are addressing. Methon may still not be feasible because of the cost. As you've heard today, the cost of all these synthetic fuels is not sky-high but very high in comparison with the cost of petroleum and hydraulic power, which is the cheapest. Wind power—I hope you'll tell us what the real costs are, because they haven't been mentioned in the papers.

My second suggestion is a modest one, but very easy to install. It is that you invite the cities of Ontario to introduce what we had during the Second World War: staggered work hours. Everybody goes to work at 8 or 9 o'clock. Have them start at 6 and go to 10, to reduce congestion and the waste of fuel and time that is consequent upon that. Here is another favourite of mine: two classmates of mine invented the computer-controlled traffic system which was installed here 50 years ago; it was a marvellous system. For reasons I've never learned or could understand, it was virtually destroyed. I suggest—and I made this suggestion to Mr Harris a year or two ago, but nothing happened—that you get the computer-controlled traffic system rejuvenated so that you save millions of dollars in fuel costs involved in running our cars and trucks.

Here's another one that may seem to you like going back to the Stone Age, but we learned from the Stone Age—caves. In our climate, heating costs are dramatic, so I suggest that you look—this is not a novel idea for me; it's been around not only for thousands of years, but for the last 30 or 40 years in Canada—at the introduction of houses, for example, that are underground and so are cheaper to heat in the winter and cool in the summer.

Along the same lines, another old idea long used in the United States is storage of heat from the atmosphere in the summer, in piles of rock in the ground to conserve heat—well insulated—to be released in the wintertime by reversing the flow.

These are all inexpensive to study on paper, and not too expensive to implement.

Finally, I'm reiterating a suggestion I made to the late Honourable Al Palladini, our local member, a year ago or a year and a half ago, that you do what you're doing today. I applaud it, because I made the suggestion. I'm curious to know whether my suggestions had anything to do with your being set up. I don't suppose so, but in any event I'm very pleased that you—the government and Mr Wilson and Mr Harris are blowing in the same direction I was a year and a half ago, suggesting to him, as I did, that you set up a joint research group, led by the government, of course. There's been some reference to it earlier today. The Honourable Mr Laughren mentioned research being conducted by his group. I suggest it be conducted in association—someone else asked one of you over here about the universities' role. To me it's obvious it should be industry, government, corporations and universities.

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My final point is much more general and I'll make it quite brief. I've written it out here. It's the moral question. I found over my 50 years in conservation work that most people are moral; most people don't want to waste things. But we all waste things idling our cars in traffic and waiting for stoplights when there's nobody coming the other way—to revert to my earlier suggestion. I was pleased to see the gentleman here turn out that lamp. If he hadn't, I would have pointed it out to the Chairman as a waste of a non-renewable resource that comes from uranium in this very room. He proved the point that I want to leave with you: the moral obligation upon all of us to use our wits, our brains and our labour to conserve our energy and to use it usefully.

Thank you again, Mr Chairman, and all of you who have remained here to hear my plea.

**The Chair:** Thank you very much. As to your comments about whether this committee was set up because of your suggestion or not, as a good politician, if I was you, I would take credit for it.

We are out of time, but we are running ahead. I'll give 30 seconds to each of the caucuses for a comment or quick question. To the official opposition.

**Mr Parsons:** I want to first of all answer one of your questions, and that's about computer-controlled traffic control. It still does exist. The problem is, if you set it up for all the traffic and one direction gets the green light, it means every car going the other way gets every red light. If you've got a greater number of cars going one way than the other—I have some experience with timing traffic lights—then it is very beneficial. In high volume areas where you have equal volumes going the two ways, it is not possible to give every car a green light at every intersection.

I'm also intrigued by your comment about the true cost of wind power. I'm wondering if you can expand on what you mean.

**Dr Anderson:** I just haven't seen the figures. How much did this cost? Do you know? It's a beautiful machine that they've put up.



**Mr Parsons:** Yes, we have prices for the various ones. I wasn't sure whether you meant—with coal, for example, there are other costs such as health costs. With wind power there appears to be just the capital and some operating costs. A million dollars a tower and up is roughly what we're looking at with those.

**Dr Anderson:** And how much per kilowatt hour? Around 10 cents?

**Mr Parsons:** Some 10 or 11 cents a kilowatt hour, I think.

**Dr Anderson:** They've got a long way to go to get down to the 2.7 for the new station, Sir Adam Beck, Queenston.

**Mr Parsons:** You're correct.

**Dr Anderson:** But it can be local.

**Ms Churley:** I noticed you sitting here today, and it was gratifying to see a private citizen interested in the proceedings here. We thank you for your suggestions. It sounds to me, to some extent, like we're reinventing the wheel again, and if we'd listened to people like you 30 years ago or so we might not be in some of the messes we're in today.

On the advice of the Chair, in terms of taking credit where credit is due, I will tell you that conservation and efficiency was not on the list of alternatives, but I suggested to the committee that we do that—

**Dr Anderson:** He was echoing you, then?

**Ms Churley:** He was. No, Mr O'Toole.

**Dr Anderson:** Mr O'Toole, I mean.

**Ms Churley:** But I'm happy to report that the entire committee fully agreed with my suggestion, and that is something I will be following up.

**Mr Ouellette:** Thank you for your presentation. I was just wondering, being that we're limited on time, do you have any students in Geraldton or Kendal? I know in Geraldton there is a house that is buried on three sides and I could never figure out why. I always wondered what the savings would be. It was the first time I had ever seen a house actually buried. In Kendal I have met individuals who have the heat storage bunkers. So these are practices that are being utilized in locations in Ontario. Whether you had any influence or not, thank you for your presentation and input.

**Dr Anderson:** May I reply?

**The Chair:** Of course, quickly.

**Dr Anderson:** Research was done 30 or 40 years ago, when I first became interested in it. I haven't heard anything about it technically from the National Research Council. I may not be informed, but I hope you will find out and see what is going on, if anything.

I was referred to a professor at the University of Toronto by the National Research Council 30 years ago. Speaking of morality, I was appalled, being then a professor at the University of Toronto myself, that his first question to me was, "Who do you represent?" I said, "I'm a professor in the department of mathematics. I represent myself. I want a reprint of your paper on underground houses." He refused to give it to me. You've got a difficult task ahead of you, Mr Chairman.

**The Chair:** Thank you very much, Dr Anderson, for your presentation. It's very much appreciated.

**Dr Anderson:** May I say just one thing? Mr Bradley has just left; I already said it to him personally. I am very impressed with the courtesy and manner in which you asked the participants your questions. I congratulate you on your uniform display of courtesy.

**The Chair:** Thank you very much. I manage to insult them all.

## FUEL CELLS CANADA

**The Chair:** We'll call the next delegation, Fuel Cells Canada. Gordon Potts is the director of member services. Mr Potts, you have 20 minutes for your presentation. The time left over from your presentation will be divided among the three caucuses. Please start by stating your name for the record for Hansard.

**Mr Gordon Potts:** My name is Gordon Potts and, as you said earlier, I am the director of member services, eastern Canada, for Fuel Cells Canada. Thank you for this opportunity to speak.

I'm going to spend the first bit of my presentation giving some background on Fuel Cells Canada.

Fuel Cells Canada is an industry association. We were founded a year ago and are based in Vancouver. Alternative fuels and the devices that convert them to electricity, like fuel cells, will get an increasing share of new power generation in the years to come, both for stationary and vehicle applications. Fuel Cells Canada's mission is "To accelerate Canada's world-leading fuel cell industry." Presently, Fuel Cells Canada is developing a national fuel cells strategy in collaboration with federal, provincial and municipal governments.

Some of the companies in Ontario working in the fuel cell industry include DuPont Canada, Enbridge, Fuel Cell Technologies Ltd, Hydrogenics, Inverpower, Kinectrics, Siemens Canada Ltd, and Stuart Energy Systems.

To give you some of the benefits of fuel cells, fuel cells are efficient and environmentally friendly. Fuel cells convert clean fuels to electricity at high efficiency; typically, 40% to 60% electrical efficiency. Furthermore, waste heat can be recovered to achieve 80% efficiency—additional energy—waste heat being used to heat water and space. Fuel cells are compact and quiet, have zero or low emissions, and are fuel-flexible and can utilize renewable fuels like hydrogen. Some of the schemes being discussed and demonstrated for fuel cells include producing hydrogen through photovoltaics and converting them back to electricity through fuel cells during the evening hours.

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There are three main applications for fuel cells: portable and micro power systems, stationary power systems for commercial and residential electricity supply, and vehicle applications for buses and cars.

Fuel cells represent a global opportunity. The current market for fuel cell systems is presently US\$500 million per year. Projections suggest that in the year 2005, the

market for fuel cell systems will be \$10 billion per year, and by the year 2020, over \$1 trillion per year. This is also very much an issue of jobs. Each billion dollars in revenue for the fuel cell industry represents approximately 15,000 skilled jobs.

What is at stake? Fuel cells are being commercialized now. Ontario has the potential to be a major player in this industry. Ontario companies like Stuart Energy Systems, Hydrogenics and Fuel Cell Technologies are world leaders in this new industry. Canadian fuel cell companies will develop and manufacture their products where they find the best environment for business success.

Canada is leading the charge but is beginning to lose that lead. As an indicator of where the industry is going, Hydrogenics, a Toronto-based fuel cell company, manufactures fuel cell test stations used for the development and commercialization of fuel cells. Primarily their sales are outside of Canada. Why is this important? Fuel cell test stations are going to locations where the fuel cells are being commercialized first, and if they're going outside of Canada, then it's not being done here.

What are other governments doing? Europe spends approximately US\$75 million per year in fuel cell research and development, as does Japan. In the United States, governments spend over US\$150 million per year. Canada, on the other, hand has spent C\$130 million over the past 20 years, or approximately US\$4.5 million per year. These Canadian figures don't include anything from Ontario, which as far as we know hasn't contributed to this industry. As said earlier, Canada still has the lead through companies like Ballard Power Systems, but Europe and Japan, with their high energy costs, and the United States, with its high-tech design and manufacturing capabilities, are coming on strong and will overtake Canada's position.

Some of the US government policies which are helping our industry include those in California, which is providing early markets for fuel cell systems through legislation, subsidies and purchaser credits. Michigan is positioning itself as a leader for fuel cell and alternative power-train manufacturing for automobiles. They have recently published an 80-page report suggesting a direction for them to head in order to secure that lead. And New York provides consumer incentives for stationary fuel cells.

What can our governments do? Government can lead the commercialization of fuel cells by purchasing systems for their buildings and vehicle fleets; provide incentives to encourage the purchase and use of fuel cells and other environmentally beneficial technologies; support industry through the tax system, being able to write off their capital costs faster etc; and finally, provide funding for demonstration projects. Fuel cell technology will be a disruptive technology. To push our way into a system that works pretty well, albeit one that is inefficient and environmentally unfriendly, is going to require some leadership from the various governments.

In closing, Fuel Cells Canada's mandate is to ensure that this industry flourishes in Canada. The race to

replace traditional power generation has begun, and the Canadian fuel cell industry can't maintain its lead without strategic support from all levels of government.

That's all I have to say. I'd be happy to answer any questions.

**The Chair:** Thank you very much. We have about three and a half minutes per caucus for questions.

**Ms Churley:** Thank you very much for sitting patiently and for your presentation; I saw you sitting and listening to some others. Having listened to all the other alternatives that are out there—there are many exciting possibilities—how do you see it all fitting together?

**Mr Potts:** I think fuel cells become an enabling technology for virtually all the power-producing technologies that are out there. Photovoltaic panels will only produce electricity when the sun is shining. When the sun isn't shining, you could produce the electricity required through fuel cells. You can imagine a photovoltaic system producing power when the sun shines, and any excess power that's produced could be converted into hydrogen through electrolysis, and then the hydrogen can be recombined with air or through oxygen in a fuel cell in the evening to produce power through the fuel cell. So it's a device that enables renewable power to produce electricity 24 hours a day. It essentially becomes a battery system.

**Ms Churley:** I see. You said at the end of your presentation that it would be disruptive to the present system. Can you expand on that a bit? I know we don't have much time to get really technical here, but I'm not quite clear on what you mean.

**Mr Potts:** A good example is vehicle applications. The infrastructure for providing fuel to vehicles is in place: it's gasoline. It's well established and there's a huge infrastructure to do that. In a world where cars are powered by fuel cells and vehicles are refuelled by hydrogen, the delivery of hydrogen is an important infrastructural change and it'll disrupt, in this case, the gasoline supply system. To accommodate the fact that it will be so disruptive, auto companies are working very hard at seeing how they can use reformulated gasoline as a fuel for fuel cells and do onboard reformation to produce the hydrogen that the fuel cell ultimately needs. But it's our opinion that in the perfect world, hydrogen produced by renewable energy or hydrogen produced by cleaner fuels like methane or methanol will provide a better environmental solution to our energy needs.

**Ms Churley:** So it requires a lot of co-operation, I would assume, between government and the private sector to make this happen.

**Mr Potts:** Absolutely.

**Mr Gilchrist:** Thank you, Mr Potts, for coming forward. I'll put my bias on the table: I'm a passionate believer in the potential for fuel cells to be part of the solution to our existing energy challenges. But coming back to your recommendations, and I would ask for your comment, one of our challenges would be, it would seem, if we were looking at sponsoring demonstration projects or supporting the development of fuel cells, the very



considerable range of technologies within that category of fuel cells. At this stage how do we, as people charged with putting together a report that's going to be making some pretty specific recommendations, get over the hurdle of understanding the various merits of the different technologies that are applied, whether it's pure hydrogen from cracking water or whether it's recovering the hydrogen atom out of hydrocarbons in gasoline or some other petrochemical?

**Mr Potts:** It's an interesting question. I think the way to cover it and to also cover other alternative energy technologies would be to do some sort of a measure of the environmental impact of whatever the proposal is that you're considering.

If you're looking at solid oxide fuel cells that are going to take natural gas and convert it into electricity, they compare that to a thermal power station and say, "What is the efficiency of the solid oxide fuel cell converting natural gas into electricity? What are the other benefits of doing it in a distributed way?" which is one of things that fuel cells permit.

I mentioned in my presentation that fuel cells can get up to 80% utilization of the energy that goes into them. This is through combined heat and power systems, and that figure comes from Fuel Cell Technologies in Kingston, who are developing these solid oxide packages. They'll use 40% of the energy input to produce electricity, and they'll get another 40% out in the form of hot water, and that can be used for heating your home. There's no technology that can achieve 80% utilization quite like that. It's pretty impressive and it's not an unachievable or even a difficult target for them to hit. So the simple answer to your question is, evaluate them on their environmental merit.

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**Mr Gilchrist:** To the extent, though, that we're not scientists and we're going to have to rely on others, to what extent would Fuel Cells Canada be in a position to assist us in determining or at least directing us to the appropriate technical experts?

**Mr Potts:** We'd be delighted to direct you. We're based in Vancouver. I work from my Toronto office on behalf of Fuel Cells Canada. In British Columbia we have a pool of funds provided by the BC government and the federal government, about \$6 million, to look at demonstration projects and to recommend demonstration projects that the governments should be funding. In that capacity we're helping our members and non-members to come up with proposals for fuel cell technologies, and we're also doing a screening process, so we become a review agency for the governments. This streamlines their job. We've got the expertise to look at these different proposals and decide whether or not they have merit and, if they don't, suggest ways to the proponents on how they can improve them or say, "Look, it's not going to fly." So, yes, I think that's a very clear and important role we can play in helping identify what projects make sense.

**Mr Gilchrist:** We'll be calling on you.

**Mr Parsons:** I also believe that fuel cells are probably one of the items of the future, but I guess I'm intrigued, and I'm trying to decide how to phrase this question. Canada is one of the leaders in it, and that always begs to me the question why. I guess I ask that because I look at European countries and what they are paying for gasoline for their vehicles compared to us. The cost of gasoline in European countries should have been enough to have driven a lot of companies into this. I look at your sheet with your members of Fuel Cells Canada and I don't see an automotive manufacturer.

**Mr Potts:** I can comment on that. The automotive sector in Canada isn't doing research into fuel cells. Automotive companies are doing research into fuel cells, but they're doing it outside of Canada.

**Mr Parsons:** OK. It is being done?

**Mr Potts:** Oh, yes. General Motors is spending a lot of money: \$1.2 billion a year, I think.

**Mr Parsons:** If I were a European country, a government, an elected official there, I would be pursuing big initiatives into fuel cells to address the cost of the fuel they're paying there. I was just intrigued.

**Mr Potts:** I think the reason Canada has the lead right now is because the federal government did some strategic partnering many years ago with Geoffrey Ballard and funded his work to develop the Thames fuel cell. What they did is quite incredible, given the limited funds they had. They had some remarkable breakthroughs which have brought the Thames fuel cell to the fore. But that's the whole reason the Canadian fuel cell industry is as strong as it is: because of early federal government initiatives.

**Mr Parsons:** So it's a great federal government initiative.

**Mr Potts:** I'm saying that's great for the R&D. But we're at the commercialization point now, and commercialization is a whole different ball game, with a lot more dollars and cents required to achieve results.

**The Chair:** Thank you very much for your presentation. I noticed your comments about how much had been spent by different governments over 20 years. It's my understanding that in the early 1980s some \$7 million was spent by Ontario on fuel cells, and I believe that project was abandoned in either late 1985 or 1986. My understanding is that there was \$7 million spent at that point.

**Mr Potts:** By the provincial government?

**The Chair:** Yes.

**Mr Potts:** I'm sorry, I stand corrected. I will go back to whomever gave me this figure and—

**The Chair:** There was a provincial initiative at that time.

**Mr Potts:** Great.

**Ms Churley:** Of course, he may be wrong.

**The Chair:** I'm just setting the record.

**Mr Potts:** OK. I'm glad to be corrected. I hope you noticed that when I made that point, I said, "As far as we know."

**The Chair:** Thank you very much for your presentation.

#### ETHXX INTERNATIONAL

**The Chair:** Our next presentation is by Tony Humble, chairman and CEO of Ethxx International. Am I pronouncing the name of the company correctly?

**Mr Tony Humble:** Yes. Thank you very much for inviting us. I invite you to interrupt whenever you want. We have some pretty startling things to say today, if you haven't already heard from the grapevine. So by all means, jump up and yell, wave your arms, interrupt me.

**The Chair:** We try to be polite. As you start, please state your names for the sake of Hansard. It's a total of 20 minutes for a presentation. We'll wait until you're finished, and then I'll divvy up the time that's left over between the three caucuses for questions. I have a gavel here; I try to make them be polite.

**Mr Humble:** What I'm actually going to present on the screen is just the first half dozen or so foils from the package you have. If we have time, we'll get into some of the details.

Let me just start by saying the company is majority owned by Canadians. I'm the largest investor.

**The Chair:** Could we have your name, please?

**Mr Humble:** I'm sorry, I missed that instruction. My name is Tony Humble, chairman and CEO of Ethxx International.

**The Chair:** And your associate?

**Mr Humble:** This is Peter Johannes, the general manager of Ethxx.

Ethxx International is majority owned by Canadians. I'm the largest shareholder. I'm the investor. The inventor of the technology is an American. He is one of the most renowned chemical engineers in North America, having built 14 major plants for Dow Chemical, including the chlor-alkali facility in Sarnia, Ontario, as well as a major coal gasification plant in Louisiana. Our head office, such as it is, is based in Aurora, Ontario. We have a plant that's virtually complete in Aberdeen, Mississippi.

The technology itself: our process is a thermo-chemical process for producing ethanol. We also produce syngas to make energy, and we produce zero emissions in our process. What I mean by thermo-chemical is that we take the biomass or the carbonaceous material and reconfigure it into ethanol in less than two minutes. This compares with a typical 24-hour cycle to make ethanol through traditional methods. The term "disruptive" was used in the previous presentation. This technology is disruptive with a capital D.

It consists of two parts. One is a gasifier. The gasifier has been "certified unique" by several major corporations we're dealing with, in that it will convert biomass and coal, preferably younger, dirtier coal, into energy with zero emissions and a very high BTU count. It does so safely, using techniques that have been tried and true for many years with our own specific technology applied to

it. In less than one second we can convert biomass into a very clean syngas with zero emissions that is a combination of essentially hydrogen and carbon monoxide. We do so extremely cheaply.

The second part of our technology is a breakthrough catalyst. I heard the term "magic box" used earlier on. We don't have the magic box; we have the Holy Grail of alternative fuel in the sense that this catalyst can take the syngas we produce very cheaply and very cleanly and convert it into ethanol in less than two minutes. This is a process, a catalyst, that major corporations around the world have been trying literally for decades to identify and perfect. Mr Pearson, my partner, has done so.

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As an example of the output, the productivity of our process, from wood waste—and now we're talking about whole-tree wood waste as opposed to selected white wood or selected types of trees—we can take a tree, throw it in a chipper, put it through our process and make ethanol in two minutes. The yield is 890 litres per dry tonne of wood waste, and the cost to produce this, depending on the cost of the feedstock, is between 11 and 15 cents per litre. That's what you call a breakthrough.

Technology benefits: the feedstocks we've used—which we've tested in our pilot facilities in Aberdeen, Mississippi, all of which run extremely efficiently with similar outputs of syngas, and therefore ethanol—are forest, mill and urban cellulosic waste; corn and wheat stover; straw; switchgrass; many other energy crops such as hybrid poplars and so on; distillers' grain; bagasse, which is what's left over from processing sugarcane; animal manures; and coal, peat and stranded natural gas. We also use natural gas, but it's just too expensive, so we don't bother.

Our gas reformer technology itself, which is only one-half of our technology offering, can be used to very cost-effectively retrofit existing coal-fired thermal power plants to eliminate emissions and significantly reduce the cost per kilowatt hour to produce energy.

The thing that is probably most significant in terms of ramping up our production is that there's a design of manufacturing plant that goes by the name of Fischer-Tropsch, and it's used to make primarily methanol and ammonia. We can very inexpensively retrofit these plants to produce biomethanol or ethanol and, come to that, we can also make propanol and butanol from biomass. The significance of this is that because of the high cost of natural gas over the last, let's say, 12 to 18 months, many of these facilities have been shut down. In fact, the majority of them have been shut down. I noticed Methanex announced yesterday the permanent closure or the extended closure of their Medicine Hat facility. I'm not saying we're talking to them or anything, but we certainly could take that facility and convert it using agricultural waste to make somewhere in the order of 200 million gallons of ethanol a year, and that's close to a billion litres.

In fact, just to give you a comparison, we have a consultant based in New York who has taken on our



cause. He's considered the world ethanol expert. His name, appropriately, is Jim Evangelow, and he's become an evangelist for our technology. He likens our situation to the post-war free world, where Aristotle Onassis recognized the availability of millions and millions of tonnes of tanker capacity and used it to fuel the post-war industrial boom and became the richest individual in the world in about 10 years. Jim says what we are faced with right now, or the opportunity we have, is very similar in that we have somewhere close to a couple of billion gallons of excess capacity that's not being used that for very little capital infusion we can convert to the production of ethanol at around 30 to 40 cents a gallon. I'm sorry if I revert to US measures, but that's normally what we talk in.

The advantages of Ethxx: to repeat again—I guess you can't repeat it enough—our processes are emission-free. We have zero-design vents on our system. We convert all the carbon—not just some of it; all of it—to ethanol or fuel with zero emissions. Number two, we can significantly impact the greenhouse gas situation, because we can use waste that's currently being burned. That's a pretty flat statement, but the fact is there are millions and millions of tonnes of agricultural waste across North America that has to be burned simply because it can't be landfilled; it spoils the groundwater very rapidly.

The fact that we can use waste materials—and eventually energy crops, which don't have quite the same positive impact on the environment but still a very significant impact—gives us a significant advantage over any other form of alternative fuel we're aware of because of the impact on reducing greenhouse gases as opposed to just remaining greenhouse gas neutral.

Another advantage is, because of our ability to use existing facilities, our capital costs are very low, and because we use tens of millions of tonnes of biomass waste, our operating costs are very low. Our margins are almost ridiculous; they're off the map. But most of all—and this is what appeals to the, I'd say, 50 or so companies we're now talking to—it's a simple, proven technology with a couple of pieces of proprietary technology added to it. The Fischer-Tropsch technology has been making methanol and ammonia for decades. We have added a proprietary gasifier, one relatively small piece of technology at the front end and a proprietary catalyst at the back end, and that combination takes an extremely safe process and produces an extremely valuable output extremely cheaply.

Commercial potential: as you can imagine, we're in discussions all over North America. We've actually got the Japanese coming to see us next month, but until now it's mainly been in Canada and the US, and I would say that 75% of the companies we're in advanced discussions with are household names. The fact that we're presenting our technology to the Fifth Biomass Conference of the Americas in Orlando next month is due to the intervention of the Department of Energy national renewable energy lab, who, when they found out about our technology, prevailed upon us to go down there and give

a paper, which we're doing. The publication of the abstract resulted in a torrent of interest, and we're trying to follow up on that now.

The Office of Industrial Technologies, I believe it is—we're meeting with senior officials from OIT, which is a division of the Department of Energy, in Orlando. We believe that, given the available capacity and the ease and relatively low cost with which we can convert it, we can be producing 10 billion litres of ethanol with our technology by the year 2006. That's our goal, and it's actually quite a modest goal, particularly given the demand for the product.

Our operating margins, which I referred to earlier, are approximately 50 cents a litre, based on a delivered cost of bone-dry biomass waste of C\$22 for a dry tonne. I guess what really makes us stand out from most of the alternative energy, and particularly the ethanol technologies, is that (1) we're 100% private equity funded—we've had not one cent of government money go into this, and we're not seeking it now—and (2) we have a production facility 80% complete. We're aware that there are many other technologies out there attempting to break down the cellulose and ferment what's inside and so on at tremendous cost with a lot of capital and operating costs and very selective use of feedstocks. None of them have built a plant yet. We'll have a plant operating in February—speaking of which, this is our plant.

This plant has actually run, made ethanol—sorry, if you'll refer to page 21; I've zipped down a bit in the presentation to show you a few of the key slides. This is based in Aberdeen, Mississippi, population 5,000. Hardly anybody knows it's there. My partner has been extremely secretive in the 15 years that he has been developing this, and this facility and his technology is basically what I invented in two years ago.

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I'm going to refer you now to page 13. This is the first of two slides I'm going to show you that demonstrate the process. I know that people's eyes glaze over when they see it, and mine do too actually, but what this demonstrates beginning to end is that using cheap, dirty coal, the cheaper, dirtier and younger the better, or biomass of virtually any form, including human and animal biosolids, we can produce electricity for approximately—if we have to pay for the feedstock, it costs us \$1.50 per million BTUs, which is about one half to one third the cost of natural gas.

That number is pretty startling in itself, and obviously we've been asked the question, "Why don't you just go out and sell your gasifier to make energy?" The fact of the matter is, that's in the business plan. But the most important fact is, from a commercial enterprise point of view, the margins from making ethanol, which is in such high demand, are so astronomical—we're looking at 200% to 300% ROIs on plant retrofits—that we're focusing all of our effort in the short term on maximizing ethanol production. Over the long haul, and on a selective basis, we'll be offering our technology to convert biomass and coal to clean energy. You can imagine that the

people we're talking to now are the ones who are in that business.

Lastly, we'll just show you the overview of the ethanol process, which is on page 20 of your presentation. The previous one ends at the syngas running a gas turbine. This one goes through an alcohol reactor. We can make the syngas in one second. It takes us another couple of minutes to make the ethanol. It's a very simple process, very inexpensive, and it will change the world.

**The Chair:** Thanks very much. We have about a minute or a minute and a half per caucus, and we should start with the government.

**Mr Ouellette:** Thanks for your presentation. You mentioned the 890 litres per tonne of wood. Does it matter what sort of wood you're using, if you're using an aspen or a—

**Mr Humble:** No, there's very little variance. We count atoms: carbon, oxygen and hydrogen atoms. We don't count sugar content or—

**Mr Ouellette:** Are you working with Tembec at all? I believe they are working on these areas as well.

**Mr Humble:** Yes. They are at our plant next Wednesday. We've met with them on a few occasions. We've met with Frank and the boys. They're very excited about this.

**Mr Ouellette:** There are a number of opportunities in the wood industry, I think, because there is so much waste that's unutilized now.

**Mr Humble:** Yes, particularly bark.

**Mr Ouellette:** The other thing is, what about leaves as well? During the fall periods, a lot of municipalities are disposing of their yard wastes and that, and there are opportunities there. Has that been explored as well?

**Mr Humble:** I have one question for you: does it have carbon in it? There's your answer. Absolutely. We use yard waste, leaves, branches, anything that has carbon and anything that can be collected at a reasonable cost.

**Mr Ouellette:** So your best avenue is to place your plants near the source of materials?

**Mr Humble:** Yes. The question everybody asks us is one of logistics: how do you move the biomass to where you need to process it? Without giving away too much, that's probably the issue that has concerned us most over the last couple of years. We have solved that problem, and all I can say in a public forum is that we have an extremely cost-effective way of reducing that waste locally to a form that's very cheaply and cost-effectively transported.

**Mrs Bountrogianni:** Do you have any operations or plants here in Canada at this point, or are you in the discussion stage?

**Mr Humble:** No, we don't. We're just in the discussion stage.

**Mrs Bountrogianni:** I'll ask a question that others have asked of others. If you were to give the government one or two good recommendations as to assisting us in our goal of enhancing alternative sources to fossil fuels, what would those be?

**Mr Humble:** I don't know if this is a direct answer to your question, but the implementation of our technology in Canada is going to be a matter of not just corporate but also government stewardship. We're keenly aware of the need to get our technology out there. This is not a model that focuses on making a lot of money. Both my partner and I are philanthropists to various degrees. For that reason, we are here today to inform. We're not here looking for money. Our model is a cash-generating machine. The reason we are here is specifically to let you know that we have this technology and, through the process of the committee, to identify ways in which it can be used. I've pointed out a few of the ways. There are other ways: for example, we can make ammonia fertilizer by recycling biomass. Right now, it's made out of natural gas. So we can be greenhouse gas neutral in the production of ammonia for fertilization.

All I can say in answer to your question—it's actually a tougher question than it sounds—is that we want to be available to provide you at all times with feedback and input to any situation that you think might be one that your committee can affect. That's particularly true, for example, for coal-fired generating stations. We are talking to the folks at OPG, but that's sort of like talking to an elephant that's travelling in the other direction. I shouldn't say that.

**Mrs Bountrogianni:** Can I ask just one quick—

**The Chair:** OK, sure.

**Mrs Bountrogianni:** Where will your plant opening in February be? There is a plant opening in February, you say?

**Mr Humble:** Yes, it's in Aberdeen, Mississippi. It's in north Mississippi.

**Mrs Bountrogianni:** Oh, not in Canada.

**Mr Humble:** No. Just to give you an idea, there are small skid-mountable modular ammonia plants that make about 20 million gallons, or 80 million litres, a year that we could implement anywhere in Canada within about nine to 12 months. Our objective would be to do one of those quickly.

**Ms Churley:** So you say you're going to change the world.

**Mr Humble:** We're going to change the world.

**Ms Churley:** That's quite a statement. Not being an engineer, and I don't understand the—

**Mr Parsons:** Is that a boast?

**Ms Churley:** That's a boast, I say to my colleague here who is an engineer, along the lines of being a lawyer.

**Mr Parsons:** That hurt.

**Ms Churley:** Now I'm in trouble.

I just wanted to ask you a question, because we don't have time to get into it. It just sounds almost too good to be true.

**Mr Humble:** Too good to be true. You don't know how many times I've heard that.

**Ms Churley:** I used to be Minister of Consumer and Commercial Relations, and in terms of consumer protection I was always told, "If it sounds too good to be



true, it usually is." So I want to ask you, except the transportation of the goods—that was answered to some extent; it was an issue I was concerned about—you say there are absolutely no emissions. I don't quite understand what you mean by that. If there are no emissions, there are no harmful emissions—

**Mr Humble:** In the process.

**Ms Churley:** —in the process. But there must be something, some residue somewhere. The other part to that question is, are any of the major environmental groups that are involved in green energy aware of what you're doing and have they said good things about it—like the Sierra Club or any of the organizations who were here today, Suzuki?

**Mr Humble:** The first part of your question regarding emissions: I'll try to explain a little about the design that enables this that nobody else has yet come up with. Our design depends upon the metering of biomass; in other words, it has to be at a certain level of moisture for it to be metered into the process. If we combine a metered amount of biomass—or coal or other fossil fuel—with a metered amount of super-heated steam, the carbon, oxygen and hydrogen in the biomass combine with the hydrogen and oxygen in the super-heated steam, which also acts as a transport gas, and the proportions of CO and H that are input to the process are almost exactly the proportions that are required to create the combination of carbon monoxide and hydrogen that create the syngas. Nobody else has figured out how to do that. The best-known alternative, such as the Battelle gasifier, for example—you've probably heard about that—can eventually get up to our level of BTUs, but they use air. They use oxygen in their process, so they create carbon dioxide. We have 100% carbon utilization; we let out no carbon from our process. It's a closed system.

**Ms Churley:** OK. I'd be interested to learn more.

**Mr Humble:** The second part: we have met with one group. Unfortunately, it's the only group we've had time to meet with, and I'm struggling for the name of the group. It's a local group—Energy Probe. We met with the executive director, who basically said, "Wow. Why are you here talking to me?"

Anyway, we want to inform as much as we can. Our objective is to get the technology out there, and we'll do whatever it takes within the time available.

**The Chair:** Thank you very much for an excellent presentation. That brings to an end the presentations for today.

#### COMMITTEE BUSINESS

**The Chair:** You have before you minutes of the subcommittee and a proposed motion. Also, a motion is on the floor. With the indulgence of the committee, I would ask that you take these and read them and that we look at having a vote at 11:50 tomorrow; in other words, at the end of the morning session.

**Ms Churley:** I would assume that we're going to have to build in a little time for discussion.

**The Chair:** That's obvious.

**Mr Gilchrist:** Why don't we vote at the end of the day?

**The Chair:** We could. I know the end of the day is rather late tomorrow. That's why I suggested 11:50.

**Ms Churley:** We have a very lengthy day tomorrow. I recognize we can't do it now. You're suggesting from 11:50 to 12, something like that?

**The Chair:** Something like that, yes.

**Ms Churley:** OK, we'll do that.

**The Chair:** Is that in order? Agreed.

Thanks very much. With that discussion, the committee is now adjourned until tomorrow at 9:30 in this room.

*The committee adjourned at 1552.*





## **SELECT COMMITTEE ON ALTERNATIVE FUEL SOURCES**

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Mr Doug Galt (Northumberland PC)

### **Vice-Chair / Vice-Présidente**

Mrs Marie Bountrogianni (Hamilton Mountain L)

Mrs Marie Bountrogianni (Hamilton Mountain L)

Mr James J. Bradley (St Catharines L)

Ms Marilyn Churley (Toronto-Danforth ND)

Mr Doug Galt (Northumberland PC)

Mr Steve Gilchrist (Scarborough East / -Est PC)

Mr John Hastings (Etobicoke North / -Nord PC)

Mr John O'Toole (Durham PC)

Mr Jerry J. Ouellette (Oshawa PC)

Mr Ernie Parsons (Prince Edward-Hastings PC)

### **Clerk / Greffière**

Ms Tonia Grannum

### **Staff / Personnel**

Mr Jerry Richmond, research officer,  
Research and Information Services

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**Legislative Assembly  
of Ontario**  
Second Session, 37<sup>th</sup> Parliament

**Assemblée législative  
de l'Ontario**  
Deuxième session, 37<sup>e</sup> législature

# **Official Report of Debates (Hansard)**

**Thursday 30 August 2001**

**Select committee on  
alternative fuel sources**

# **Journal des débats (Hansard)**

**Jeudi 30 août 2001**

**Comité spécial des sources  
de carburants de remplacement**



Chair: Doug Galt  
Clerk: Tonia Grannum

Président : Doug Galt  
Greffière : Tonia Grannum

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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Thursday 30 August 2001

Jeudi 30 août 2001

*The committee met at 0931 in room 151.*

**The Chair (Mr Doug Galt):** We'll call to order the select committee on alternate fuels. We're a little short on members right now.

I'm told that grandfathers have bragging rights and, as of seven and a half hours ago, I became a grandfather. Our daughter Laurel delivered a baby girl, Catherine Maeve.

*Applause.*

**The Chair:** Thank you very much. I didn't do anything; it was very easy for me.

## FEEL GOOD CARS INC

**The Chair:** Our first delegate is from Feel Good Cars. We really appreciate your coming on Monday with a car to the Legislature. My apologies that some of our members are not here—they will be shortly—but for Hansard and for presentations we'd like to stay on time, so if you'd like to come forward at this time.

Welcome. For Hansard, please state your names as we begin. There's 20 minutes for presentation, and what's left over from your presentation within that 20 minutes we'll divide between the three caucuses for questions.

**Mr Gary Rewald:** Honourable Chair, members of this committee, my name is Gary Rewald. I'm the CFO and COO of Feel Good Cars Inc. With me is Marek Warunkiewicz, the VP of marketing, and Barbara Disman, our director of promotions.

As an aside, I'm sure you have seen and will continue to view many PowerPoint presentations. We have chosen not to present in PowerPoint. We have reality which was parked outside this Legislature on Monday. I hope you had a chance to look it over.

It is with great pleasure that we find ourselves presenting at this committee. We believe that it is essential that all of us, and especially those in positions of leadership in government and Legislature, acknowledge that the energy sources that we all take for granted are limited in nature and, in many cases, responsible for air and water pollution through the emission of toxic substances when using such energy resources.

As you're all aware, Toronto recorded the earliest smog alert days on record this year. This government has stated many times that it takes a stand of accountability, promoting partnerships and participation with the private sector to address the issues that affect us all. We are

pleased to see this reflected in the formation of committees such as this to address the concerns of the general public with regards to issues such as air and water pollution and to hear submissions from those actively involved in addressing these areas of concern.

It is our contention that the search for alternative fuel sources has been stepped up in recent years as a direct result of the concerns of regular citizens about the pollution of our natural resources. Alternative fuel research is thus directly related to attempts to reduce toxic emissions, clean up our environment and reduce health risks to each one of us in the general population.

We wish to address one area of alternative fuel and how this can be used today to make a start in the fight against pollution and contribute to the development of alternative fuel sources.

Without doubt, one of the world's greatest contributors to poor air quality—to toxic emissions—is the automobile. An average gas-powered car produces 657 pounds of regulated tailpipe emissions annually. Air pollution is rated as the fourth cause of death in Toronto. It is estimated that one in three air-pollution-related deaths in Toronto is linked to carbon monoxide and that 250 infants are hospitalized annually in Toronto due to air pollution. In the downtown cores of cities across the world, urban vehicular congestion has been shown to contribute significantly to a deterioration of general health. Who of us has not seen pictures of traffic police wearing masks to protect them from the toxic fumes emitted from vehicles?

Indeed, to their credit, the automobile companies have spent billions of dollars trying to make their vehicles as fuel-efficient as possible and as non-polluting as possible. But, as we all know, despite these efforts, the sheer volume of vehicles on our roads, especially in our larger cities and downtown cores, continues to contribute to the air pollution in ever-increasing amounts. Particularly in North America, where we are urged to drive bigger and more powerful cars, where ownership of an SUV is considered a status symbol, the contribution of the automobile to poor air quality is significant. Across Europe, cities are banning vehicles from parts of their downtown core to protect historical and cultural artifacts from the ravages of air pollution caused by automobiles.

To address the problem, there needs to be a concerted effort by both government and the private sector. The solution is obvious: reduce the number of polluting

vehicles on the roads, especially in the congested urban cores of our cities and towns. Produce more zero-emission vehicles.

Feel Good Cars was started as one person's attempt to in a small way make his contribution to toxic emission reduction. Ian Clifford, the president of Feel Good Cars, tried unsuccessfully to buy an electric vehicle from the major automobile manufacturers. It was not a matter of money; it was a matter of just no supply. Finally he managed to purchase an original 1959 Henney electric Renault Dauphine, one of a very small number that were sold at the time by the Renault company. From this small start, Feel Good Cars is today the first company in Canada to offer a street legal, ready-to-travel electric vehicle capable of speeds up to 110 km, with an 80-kilometre range. To recharge, you merely plug the vehicle into a normal household outlet overnight. No gas, no noise, no emissions.

But is the production of a limited number of these electric vehicles enough to really address the problems of air pollution? Of course not, but it is a start, and it was the start of a much larger project to put more electric vehicles on to our roads, thereby reducing toxic emissions. For example, in a province like Alberta, where 96% of electric power is generated by fossil fuels, the use of electric vehicles will result in a 75% to 85% reduction in tailpipe emissions per vehicle. In provinces where power is generated by hydroelectric sources, the resulting decrease in tailpipe emissions per vehicle is between 98% and 99%. Average reduction across Canada with a mix of power sources is about 75% per vehicle.

In January of this year, Feel Good Cars commissioned a report on the attitudes of Canadians toward electric vehicles. The executive summary of that report is included in our submission and in the folders presented to the committee members. The results of this survey are very interesting and indicate that all Canadians recognize the environmental impact of the current internal combustion engine, and that in all the cities surveyed, over 50% of respondents would purchase an electric vehicle. So why have we not seen electric vehicles on our roads?

There are many reasons, ranging from, "Battery technology is not advanced enough to provide sufficient power for long-distance driving," to "Gas engines are still relatively inexpensive to run," though the fuel efficiency of a gas-powered car can be as low as 12% versus an electric vehicle's efficiency in excess of 80%. In our opinion, the reality is all of these and one important other: there needs to be a mindset shift of the average consumer to an understanding of the applications for electric vehicles.

In Europe, governments understood the need to create a new vehicle classification to deal with short-range, low-speed urban core driving. As such, they introduced the concept of the low-speed vehicle or, as it is known in some countries, the quadricycle.

In the United States, the low-speed vehicle classification was enacted in 1998 in order to address a growing phenomenon: the use of golf carts on public roads. At the

time there were over half a million golf carts used on public roads. It is estimated that a further 150,000 per annum are sold for on-road use. To date, 32 states have adopted legislation to certify and license and control vehicles in this category.

In Canada, the federal government enacted regulations on August 16, 2000, creating a new on-road vehicle class for low-speed vehicles, or LSVs. An important note: in Canada an LSV has to be zero emission, ie, electric. To date, not a single province has followed through with enacting legislation to enable the use of such vehicles on our roads. I am concerned that this government is not moving quickly enough to enact legislation to enable the use of alternative fuel sources. I refer specifically to the document *Listening to Ontario: Ontario Smart Growth, A Summary of Consultations*, issued on August 20, 2001. Nowhere in this document is the issue of federally mandated zero-emission vehicles, and specifically electric low-speed vehicles, mentioned as an effective method to reduce tailpipe emissions.

#### 0940

Electric LSVs have many applications in our society: gated communities, resorts, small towns, disabled vehicles, airports, large campuses, downtown urban core driving, parking enforcement, and local delivery. LSVs are not intended to replace every vehicle on the road today, but with each delivery of a vehicle we will be reducing toxic emissions into our atmosphere.

Feel Good industries is currently gearing up to manufacture in Canada and to distribute across North America highly efficient, high-quality electric low-speed vehicles. In order to do this, we need immediate support and action from this government, the federal government and all the private company partners of industry.

By action and support, I'm referring to the highest priority being given to enact LSV legislation in this and all the other provinces: the provision of incentives to purchasers of electric vehicles, such as free downtown parking; the setting up of infrastructure such as pay-per-use charging stations in convenient locations; tax incentives to both manufacturers and consumers; specific research and development incentives to researchers and manufacturers; specific export assistance; specific cash and resource incentives.

Above all, we need access via governmental support to the funding sources within the public and private capital markets. I was extremely shocked to hear from a number of labour-sponsored fund managers that they did not care about the creation of jobs in this or other provinces. "We need to produce high returns, not jobs" was a statement made, not once, but many times to me.

Ontario needs to be strong about its commitment to clean air and toxic emissions. Ontario should look to the initiatives undertaken in the United States, particularly in California, where the California Air Resources Board took a very strong stand against auto manufacturers, forcing them to commit to the production of quantities of zero-emission vehicles. This program was started in 1990 by CARB and is a program intended to reduce vehicle



emissions to zero by the gradual introduction of zero-emission vehicles. In September 2000, after hearing extensive testimony and public comment, and despite extensive and expensive lobbying by the auto manufacturers, CARB adopted a resolution affirming that the ZEV program was essential to the state's long-term air strategy. Other resolutions directed their staff to propose modifications to the ZEV mandate to assure a successful and sustainable long-term ZEV market. Although Ontario is a province where automobile manufacturing is a strong sector of industry, we are over 10 years behind states like California in demanding that we have the right to clean air.

We certainly are not here to berate the auto companies, but perhaps it is time that this government takes the stand that the auto companies, like the cigarette companies, must take responsibility for the effects of their products on human health. We should demand that clean technologies be made available to Ontarians and indeed to the rest of Canada as soon as possible.

Our research indicates that an automotive fuel cell engine is still six to eight years away. LSVs offer a solution in specific applications immediately. The technology is here, proven, and will only be further enhanced by developments in alternative energy sources. As and when enhanced battery and fuel cell technology becomes commercially available, LSVs will be able to take advantage of these technologies to further enhance the products that will already be on our roads.

By addressing this LSV issue, by enacting the legislation, by supporting initiatives of companies such as ours, by providing the support necessary to begin such initiatives, the Ontario government can make Ontario the centre of development of these alternative power technology developments and a world leader in the development and production of zero-emission vehicles using the cleanest of fuels available today—electricity.

It is a small step forward, but a necessary one and one that has to be taken now.

**The Chair:** Thank you very much for the presentation. Again, thank you for bringing your electric vehicle. A great name, your Feel Good Cars. We'll start with the official opposition. We have about two minutes per caucus for questions.

**Mr Ernie Parsons (Prince Edward-Hastings):** Thank you for coming. I personally believe, as an engineer, that your approach makes a lot of sense in an urban area. But the sense I have is that the limiting factor in the electric car at this moment is the battery: 80 kilometres' duration scares some people. Have you any sense of the speed at which the technology is changing that would provide an improved battery, increased storage, longer battery life?

**Mr Marek Warunkiewicz:** Battery technology hasn't evolved a lot because there hasn't been a need to. It is evolving now. The production of our model of cars is really a compromise between affordability and usability. Our survey has shown that 85% of Canadians drive 70 kilometres or less on their daily commute, so we chose a

set of batteries that will give them pretty much what they usually do on a day-to-day basis. Battery technology is evolving but, for example, to get a kind of battery that will enable us to go 120 kilometres, the battery pack right now might be up to \$50,000 in new costs, which is totally unaffordable economically.

At this point we are looking into alternative methods that would increase the range up to 120 kilometres, possibly 200 kilometres. But battery technology is evolving; it is just a cost issue right now.

**Mr Parsons:** But calculators at one time cost \$1,000; now they cost \$3 or \$4.

**Mr Warunkiewicz:** Exactly.

**Mr Parsons:** If you can get that initial shot to get the development done—

**Mr Warunkiewicz:** For example, the batteries that we're using right now cost us \$5,000 a pack for a whole set last year. Now it's about \$1,500 for a whole set.

**Mr Rewald:** I'll also address that issue. We're not developing batteries. We're relying on others to do that. The fuel cell technologies and the fuel cell industry is the area, I think, that most people are looking at to bring us those kinds of technologies as quickly as possible.

However, as I said in our presentation, the research has shown that those technologies are seven to eight years away before they have a full automotive battery that's available to us. The low-speed vehicle is not intended to replace long-range driving. It is supposed to be urban core driving.

**Ms Marilyn Churley (Toronto-Danforth):** Thank you very much. Is this the car that made it into the newspaper the other day?

**The Chair:** And guess who was driving.

**Ms Churley:** I think it was me.

**Mr Rewald:** No. The car you were driving was the Ford TH!NK product.

**Ms Churley:** A different one.

**Mr Rewald:** Yes, unfortunately.

**Ms Churley:** I've driven electric cars a couple of times and one of the striking things is that it is totally quiet. It takes a bit of getting used to. I just wanted to ask a question about city use of the car in terms of its pickup, its ability to gather speed and keep up with the traffic. Are there any problems with that?

**Mr Rewald:** No, but in the low-speed vehicle classification requirements there is a requirement that the low-speed vehicle, as an electric vehicle, must have a top speed of at least 32 kilometres per hour, and there is a requirement for a 0-to-10 kilometres pickup that we have to comply with. So yes, we will comply with all those things that have been set by standards in Europe and in the US.

In the current vehicle, the Dauphine, there is no problem in reaching pickup speeds anywhere, even getting on to the highway. The current Renault Dauphine that is prototyped and that is driving around and the original Henney Kilowatt drives on the highway with no problem at all.

**Ms Churley:** What about the batteries? I assume that there is innovative work going on all the time to improve the efficiency of the batteries. I assume that there are new kinds of batteries being developed for this with different kinds of chemicals. I'm thinking about the disposal and issues. These are huge batteries.

**Mr Warunkiewicz:** The battery is one of the most recycled products that society has produced. I think the recycle rate is close to 95% of the entire battery which is recycled into a new battery, with a minimum use of power. So they're very recycled. And yes, there is continuous research being done to improve battery life and storage and recharging capacities. The biggest problem with the traditional batteries that exist right now is that you can't charge them quickly enough. As you're driving, you're able to put 10% back in through a braking system that's been developed. The battery can take a lot more but it can't take it in one quick charge. They're developing batteries on a number of levels. One is how to recharge it as you're driving and also to increase the range of the battery.

But as we mentioned earlier, it's really a matter of cost-effectiveness. Nobody would pay \$50,000 for a battery pack that can get them 40 kilometres further, so we're looking at other methods right now to increase the range of the car.

0950

**Mr John Hastings (Etobicoke North):** Thank you, ladies and gentlemen. I'm most interested in your comment on what looks like page 4, mid-paragraph, that you were shocked about labour-sponsored funds, or people from the investment community. I don't know why you would be, because their philosophy is ROI. There are a few out there, I guess, that would be a little more interested beyond ROI and job creation.

I have two questions for you: (1) what is your philosophy, your expectation of the capital markets in terms of alternative fuels; and (2) since you're dealing with such fragmentation in the fuel cell industry and in electric cars, why don't some of you get together and create a mini-conglomerate to deal with the capital markets and to advance the technology?

I'll tell you why. I was at a company in Orillia about a week ago today. I drove an electric car that's based on a magnesium-type fuel cell. But they also showed me something very interesting. This company had purchased 15 Ford vehicles at auction, pickup trucks, that had been made by the Ford Motor Co. They had gotten, in turn, a \$50-million grant from the Department of Energy in Washington, but they bought these vehicles, I suspect, for about 10 cents on the dollar for what Ford had put in.

There are your problems when you deal with this stuff. On the one hand, are you expecting grants from this committee, or are you expecting a better way of prodding the capital markets?

**Mr Rewald:** I can address that in two ways. First of all, with regard to my comment regarding the labour-sponsored funds or the capital markets, in times that we are facing right now, where the funds and the VCs have

seen such huge losses in terms of the high-tech industry, when companies such as ours come about with real business plans, with jobs, with opportunities and with old-economy style, for somebody to tell me, "We're not interested in jobs but we're interested in returns," when we can provide the returns, is astounding.

Second, with regard to the vehicles, I think you made a point that the vehicles were subsidized by a grant from the US Department of Energy. That kind of defeats the object of having the plant or the R&D being done in Canada. The US government obviously has taken a step toward making sure this does happen by providing grants and initiatives to help these companies.

The last point, addressing what my philosophy will be from this particular committee, it is that, as I stated, in August 2000 legislation was enacted at the federal level to permit low-speed vehicles in this country and not one province has yet enacted legislation to bring that to reality. Right now we have vehicles available that cannot be driven on the roads that should be allowed on the roads, that can help us reduce toxic emissions and that can help us develop a strategy, together with fuel cell companies. I cannot at this point in time accept the fuel cell battery and put this vehicle on the road, because it is not legal. So where do I test it? How do I test it in real-life situations?

**The Chair:** An excellent way to wind up the presentation. Our time has run out. Thank you very much for coming forward. Certainly electricity is something that sounds like a way to the future, so we appreciate your presentation.

#### FUELMAKER CORP

**The Chair:** Our next delegation is FuelMaker. I'll allow you to introduce yourself and your last name, vice-president sales and marketing, international sales. I'm sure I'll pronounce it incorrectly.

**Mr Mario Pirraglia:** You can give it a try.

**The Chair:** Pirraglia?

**Mr Pirraglia:** That's perfect.

**The Chair:** Maybe I'm improving my pronunciation of different names. Welcome. You have 20 minutes for your presentation.

By the way, the microphone comes on automatically, but if you want to say something quietly to someone, there's a mute button there. Otherwise, they'll look after getting it on and off for you.

**Mr Pirraglia:** Thank you very much for allowing me to come here and talk to you today. I am the vice-president of sales and marketing for FuelMaker Corp. I have a PowerPoint presentation. We do have to prop Microsoft up a little, so unfortunately we have this PowerPoint.

**The Chair:** We should upgrade our committee rooms to automatically handle that very readily. There's some updating required in here.

**Mr Pirraglia:** Technology sometimes is slow.



What I'd like to do is take you through a little bit about our company today—who we are, what we do and where we came from. The gist of this presentation is that we can refuel anything, anywhere, with natural gas.

FuelMaker is a Canadian company. We're based out of Toronto. We have 60-plus employees. Most of them are engineers. We are a high-tech company and we are developing and we do have on the market natural gas refuelling systems. We now also have our first hydrogen refuelling system, which is located down in California, refuelling a Honda that's running on a fuel cell. We have 65 dealers throughout the world and in Ontario we have our own dealership, run out of our company, for sales and service.

FuelMaker was formed in 1989. Our original product was designed for the residential market; it was designed to have a natural gas refuelling system at home. As a matter of fact, I have one at home and all my cars run on natural gas. My son's car has never used gasoline, but dad pays for the gas. So that was our original market; unfortunately, that market was not ready for us. It just wasn't there yet, so we had a choice: we could go out of business or we could redevelop our product for the present, existing markets. What we found were three markets that we could go after: (1) the fleet market, (2) the forklift market, and (3) the ice arena market. We'll talk about those a little more as we go on.

Within the last 12 years, we have over 8,000 of our units throughout the world, the majority in North America. We are recognized worldwide as the leader in natural gas refuelling. There are probably about 12,000 refuelling stations throughout the world and we have 8,000 of those. We are convenient, and we've designed our systems today for small-to-medium-sized fleets, forklifts, ice arenas. We still do residential applications.

FuelMaker can provide economical refuelling where the public infrastructure isn't available. I looked at the map of Toronto as it pertains to natural gas refuelling stations and there are over 70 refuelling stations in Ontario. We're probably one of the best places in North America to obtain natural gas. Unfortunately, there are holes. We can come in and help fill those gaps with convenient, on-site natural gas refuelling. Many times we'll talk to a fleet manager and we'll say, "Hey, what about natural gas?" and he'll say, "There's no refuelling available." That's where we come in. We can put economical, on-site natural gas refuelling for them.

The cost of this will typically be equivalent to what they're paying at the pump, and this includes all of the equipment, all of the installation and so on. There's no additional costs that we're talking about and, as we know, natural gas is cheaper than gasoline. Some of you might say, "Natural gas has gone up in price," and it has, but what's happened to gasoline? It's also gone up. Our studies show that today we have a better cost advantage than we did two years ago in the spread between natural gas and gasoline. It's more economical today, compared to gasoline, then it was two years ago.

We do all this through some leasing packages and other things like that, so there's no capital required up-

front by the customer. They can start saving money right away.

#### 1000

We have two types of systems. One is called a time-fill and the other one is called a fast-fill. All of the public refuelling that you have out there is fast-fill, which means you drive up, you connect and you fill your tank, just like gasoline, and away you go. In some cases we have a captive fleet, which means they are all coming back to a central location. They are parked maybe eight hours, 16 hours, and we can take advantage of that with what we call time-fill refuelling. Time-fill refuelling is more economical, you need less equipment, plus, you gain the advantage of productivity. If we think about a driver who has to stop to refuel with gasoline, that's costing somebody money at two points: one is the driver and two is the vehicle. Typically, that cost is somewhere around \$50 an hour that we have to calculate into our economics. If you remove that task, you now gain again through productivity. We can also offer the fast-fill system, which takes two to three minutes. Most of our sites will end up being a combination of time-fill and fast-fill, where the customer wants the cost advantage of time-fill but also wants the security blanket of a small fast-fill for top-ups throughout the day, and that works very well.

Our systems are ideal for government fleets, and one of our biggest customers in the United States is government fleets. I'll show you some pictures in a few minutes. We can do cars, we can do pick-ups, vans, school buses, and we've even done some street sweepers for refuelling. One of the examples is the New York state DOT. They have purchased just over 100 Honda Civic dedicated natural gas vehicles. They needed an infrastructure. They had a couple of million dollars to spend on infrastructure. They had a choice: they could build two or three large stations or build numerous small stations, and they opted for the latter, where they built 30 small natural gas refuelling stations using our product throughout the state. This made it very convenient and economical for them to have refuelling anywhere they go.

To give you an idea of some of our present market and our present customers, government applications—and this is a combination of state, also federal, and some from Canada—are one of our primary markets. This market in the United States is being driven by mandates and incentives. The cost differential of fuel in the United States isn't advantageous, as it is here in Canada. So there we have mandates and incentives, especially in California today, which is our largest market, that's being driven by those things. As you can see, in Canada right now we have four small fleets using FuelMaker products. When it comes to municipal and private fleets, again the leader is the United States: Arizona with about 115, and those are mostly residential applications. Last year there were numerous grants available which really pushed the market in the direction of natural gas. In California you can see there are 72. Most of those are municipal; there are a lot of school districts using natural gas, getting rid

of diesel, and again, they are using FuelMaker to help them with the refuelling infrastructure. And we have 112 throughout the other states in America. In Ontario we have 11 refuelling stations. Half of those are private fleets and the other half are mainly from the old city of Etobicoke, which several years ago did a big push with natural gas and did an excellent job of converting a lot of their fleets to natural gas. Those sites, which are probably close to 10 years old today, are still up and running. I went to visit some yesterday, as a matter of fact. The school board is still using them and they're working just great for them.

The other market, which doesn't really pertain to what we're talking about today, but just to give you an idea, is the forklift market. In Ontario we are doing extremely well. The main driver in the forklift market is indoor air quality. If you can imagine, in Canada, where we have our doors and buildings closed nine, 10 months of the year, you have high carbon monoxide concentrations from some of the forklifts running indoors, and they are switching to natural gas to alleviate that problem.

The other market where we did extremely well in Canada, especially in Ontario, is the ice resurfacer market: Zambonis, Olympias. The reason for that again is indoor air quality. They had a problem with kids getting ill or people playing hockey getting ill and they went to natural gas to alleviate that problem. We have done extremely well. Ontario has done an excellent job in converting most of their rinks to natural gas.

FuelMaker environmental benefits: what we offer when it comes to the environment is that you can utilize natural gas, which is the cleanest fossil fuel available, anywhere. As long as there is a gas pipe there, you can use natural gas to refuel that vehicle using FuelMaker in a cost-effective manner. The other advantage: for locations where they do have on-site refuelling with gasoline or diesel, you can eliminate those risks of ground contamination from spillage and so on by going to natural gas.

I talked about the New York DOT. Here's a sample of four of their sites out of the 30. You can see that they look very similar to gasoline stations. They just plug in, refuel and away they go. A big customer of ours is USPS, the United States Postal Service, down in the United States. Again, we have about 1,000 vehicles that are using the FuelMaker system, time-fill.

Here's a street sweeper, which is using one of our larger products, again natural gas. They could not refuel with natural gas unless they had our system in place.

Public works, Fulton county: they have about 60 natural gas vehicles that are using three of our refuelling systems to fuel their vehicles. These are also on what's called a fuel net system, which can also be used by the public.

An animal shelter down in California: again, numerous pickup trucks being utilized with natural gas refuelling on our system.

I think we all know this site here: Air Canada Centre, using our equipment to refuel the Zambonis and numerous forklifts that they're using indoors.

At home: as I mentioned earlier, we can even do this at home. The problem with home refuelling today is that our product is too expensive, so we are working on a new product. We're doing a press conference next week. This product will be available by the fall of 2003. It'll have a price of about US\$1,000. You hang it in your garage, plug it into your 110, you plug it into your natural gas, just like a gas barbecue, and you fill your vehicle. So that's our goal, that's what we're shooting for. But we need to get there, and to get there we have to continue with our fleet market, with our ice arena market, with our forklift market.

Where can the Ontario government help?

The main one that I think is important to us is to convert your fleets, the Ontario government fleets, to AFVs. I'm not saying natural gas; I'm saying AFVs. You choose the best fuel available for that area to convert it to alternative fuel. I think this is feasible; I think you can do this. There are many different fuels available today. I think that natural gas will win, and that's why I say AFVs, because I'm confident enough that our product, with natural gas, is the best choice. But in some areas you might not have natural gas; you might have to take a different route to get the AFVs.

Provincial PST rebate on the AFVs: that's another option. I know the province is already doing some use of that.

Offer free use of toll roads to AFVs. This is being done in California and this is very effective to increase the AFV usage down in California.

Provide unrestricted use of car pool lanes. This is not a big issue yet in Ontario, but in other places, like California, it's a huge issue. In some places, fleet managers are hiring a second person to sit in that other passenger seat so they can use the car pool lanes. AFVs have given them a way to use those car pool lanes with no additional cost.

The last one is to give exemption from Drive Clean emissions tests.

That's my presentation. Thank you very much for listening.

**The Chair:** Thank you for the presentation. We have hardly two minutes per caucus, starting with the NDP.

**Ms Churley:** We've heard from a number of people who produce the system. I think you're the first one to come and talk about the need to have the ability to refill, that that's a problem and one of the reasons why it's difficult for people to sell their cars. It's something that I support as part of the whole puzzle, one of the pieces. Natural gas is finite. Eventually it is going to run out, and I don't see it as a permanent solution. But in the meantime it's a much cleaner gas than the others, so I'm supportive of this as one of the pieces. I'm just wondering how you see what you do fitting into all the other pieces of trying to keep our environment clean, ie, public transportation, rail. I assume that you see yourself as a piece of that.

**Mr Pirraglia:** Everything is driving toward the fuel cell. As it was mentioned earlier, it is six to 10 years



down the road, but we're also striving toward that goal. We see natural gas as a stepping stone to that fuel cell. Most of the natural gas equipment companies, such as ourselves and the automotive OEMs, are driving toward that fuel cell goal.

But we have to remember that even if you have a vehicle available with a fuel cell today, you still have to refuel it. You still have to put something in it, and that's where we fit in: to have the infrastructure available, whether it be natural gas or hydrogen.

**1010**

**Ms Churley:** So this would be a transition, but it could be rolled over.

**Mr Pirraglia:** Yes. Our new product that we're developing today for the home, and we call it the home refuelling appliance, is also being developed as a hydrogen refueller. So the option will be, not in three years but maybe in six years, that you will have the option of having this unit as natural gas or as hydrogen.

**Mr Jerry J. Ouellette (Oshawa):** Just a couple of quick questions. This home system that you mentioned: first of all, what's the current cost of the one you have? You said you wanted to go to US\$1,000?

**Mr Pirraglia:** That's right. At present we don't consider our product as a home refueller. It can be used for home refuelling but it's not really designed as that, and one of the reasons is the cost. For you to have a home refueller today, you're probably looking at around \$8,000 installed. So it's not really catering to the home refuelling marketplace today; it's more for the fleet market that that product is a good fit. Once we roll it into the fleet market, then the costs become effective. Again, by using leasing, you can have no cost at all.

**Mr Ouellette:** So what would happen with somebody who was to take one of these home units and start to charge other people to use it at their household location for refilling?

**Mr Pirraglia:** There are some cities or some small communities in the United States that are looking at that option, where they can have their own community refueller, let's call it. Clean Cities is driving some of this down in the United States, especially down in Atlanta, where the Clean Cities coordinator has natural gas vehicles, and he does have a FuelMaker at home, but he wants to have a small refuelling site right on their community. So that is an option, where you could have that type of thing. We have not contemplated the sharing of a home unit.

**Mr Ouellette:** Yes. You could envision some people wanting to capitalize on the market would start to retail out of their house in a residential area and it could cause a concern later on.

**Mr Pirraglia:** Yes.

**Mr Ouellette:** What is the availability for this home unit to interchange with other locations? Once you install the home unit that you are producing, will you be able to go to, say, any of the other 66 locations in Ontario to refill as well?

**Mr Pirraglia:** Once you have a natural gas vehicle, you can refuel at any of our locations.

**Mr Ouellette:** So it's all interchangeable?

**Mr Pirraglia:** Yes, the refuelling of a vehicle can be done wherever. Again, I must stress the point that today's product line is not a residential product line; it's a fleet product line. The residential product line will be available three years down the road. What we produce today is not meant for residential use. There are some that are being used in that application. One who comes to mind is Mr Schad, who is the owner of Husky up in Bolton—a big environmentalist. He has a fast-fill at home to fill his Crown Victoria but, again, it's more of a fleet type of system that he's using than a residential type of system.

**Mr Ouellette:** But it's interchangeable with all the other service stations that currently provide it.

**Mr Pirraglia:** Yes.

**Mrs Marie Bountrogianni (Hamilton Mountain):** I'm curious: one of your recommendations is to "give exemption from Drive Clean emission test fee." So these cars that are powered by natural gas still go through the Drive Clean program?

**Mr Pirraglia:** Yes, they do.

**Mrs Bountrogianni:** Do you have any data on how many of them fail, in comparison to the gasoline automobile?

**Mr Pirraglia:** From my personal experience and all of our own natural gas vehicles that we have at our company or my own vehicles, none of them has failed. But they've been tested both on gasoline and natural gasoline and they haven't failed in either case. Now, from what I know, there aren't too many failures that are occurring anyway, even on gasoline. So once you're running on natural gas, the failure rate I'm guessing at is very low, if any at all.

**Mrs Bountrogianni:** I'm surprised that it's even necessary.

**The Chair:** Thank you very much for your presentation. We appreciate your coming forward and bringing to our attention the advantage of natural gas.

#### GAIA ENERGY INTERNATIONAL INC

**The Chair:** Our next presenter is GAIA Energy International Inc, Greg Binions, chairman; Dr Raymond Colledge, technical adviser; Dr Carl Wintermeyer, director of automaker liaison; and Mr Ross Blaine, executive vice-president.

**Mrs Bountrogianni:** Before our guests start, I'd like to ask the research department if they can get data on Drive Clean tests on AF vehicles.

**The Chair:** I think that's in order. Thank you.

As you start, just state your name for the sake of Hansard. There's 20 minutes for your presentation, which includes questions from each of the three respective parties.

**Mr Greg Binions:** Good morning. My name is Greg Binions. Thank you for giving us the opportunity to introduce Gold Chance International Ltd and its premier new energy project, GAIA Energy International Inc.

As a past professional North Sea diver and avid outdoorsman, I have seen first-hand how environmental pollution affects our wildlife and their habitats.

**The Chair:** Could you just introduce your co-members there?

**Mr Ross Blaine:** Ross Blaine.

**Dr Raymond Colledge:** Dr Raymond Colledge.

**Mr Carl Wintermeyer:** Carl Wintermeyer.

**Mr Binions:** My family has been in the long-term health care industry for over 30 years, and as such I have personally seen the effects of pollution, and in particular the cost and misery it inflicts on our elderly.

First of all, Gold Chance International Ltd is an energy development company founded in 1999 by my family to bring new environmentally friendly energy products to Canada. Gold Chance management seeks out new energy products or applications that could be involved in the production of alternative energy sources. We then evaluate these opportunities based on their scientific validity, economic feasibility and intellectual property security. One of these products is GAIA, which is a high-performance, low-polluting alternative for gasoline. GAIA has already been commercialized in Japan, where it is sold under the brand name of GALAX and Ixon through over 300 converted retail gasoline stations.

Arising from the Team Canada trade mission facilitated by Prime Minister Chrétien and supported by Premier Harris and the Premier of Quebec, we signed our agreement as part of the Japan-Canada trade mission of September 1999.

It is GAIA Energy International's intention to launch its new lower-polluting gasoline alternative product in Ontario first and then in the rest of Canada and the United States.

Since finalizing the rights to license GAIA, we have actively been discussing the development of two products that are associated with it. One is a diesel replacement fuel, and the second is a recycling device that converts plastic into diesel feedstock.

In our efforts to commercialize GAIA fuel as a lower-polluting gasoline alternative in our Ontario test market, we have evaluated GAIA as an effective lower-polluting gasoline alternative and ensured that GAIA does not damage North American auto parts or pumping equipment. Like the consumer in Japan, the North American consumer can be assured that GAIA would not violate automaker warranties. We are prepared to set up product testing sites to prove the business case for GAIA as a cost-effective, lower-polluting alternative for commercial gasoline fleets.

I would like to turn it over to Dr Raymond Colledge.

**Dr Colledge:** Thank you, Greg, and good morning, honourable members. I am going to highlight for you some important aspects of GAIA fuel, with particular reference to what it can do for the environment.

First of all, though, a few words about myself. I have an extensive background in product and market development in a number of different industries, including plastics and textile fibres as well as chemicals. My most

recent experience has been in alternative fuels, where the objective is to provide an alternative to gasoline with something that is not derived from petroleum, and in oxygenated fuels, where the objective is to make gasoline a cleaner burning fuel.

These activities have taken me from coast to coast in Canada and the United States. I have been active in California, where I worked extensively with the California Energy Commission, the Air Resources Board and the South Coast Air Quality Management Board.

#### 1020

I was a founding member of the Canadian Oxygenated Fuels Association, of which I was chairman for a number of years, our main objective being to promote the responsible use of alcohols and other oxygenates as fuels.

I was also a founding member of the American Methanol Institute, based in Washington, DC, and I became the vice-president of market development. The AMI—now the MI—is a lobby group which represents the interests of the world methanol industry. Our most outstanding achievement was undoubtedly to provide input, and it was a substantial amount of input, to Congress during the extensive revisions that were made to the Clean Air Act a few years ago. These endeavours resulted in the introduction of reformulated gasoline, which is basically oxygenated gasoline, into all major metropolitan centres in the United States as a means of reducing vehicle emissions in order to be able to comply with the air quality standards drawn up by the Environmental Protection Agency. This program has been an unqualified success in reducing carbon monoxide and smog levels in many major US urban centres.

It is not that long ago that most Canadians believed smog and other air quality problems were confined to faraway places such as Los Angeles, Houston, Mexico City and Beijing. That, of course, is no longer the case. I think any remaining doubts must have been dispelled by the appalling situation we have had to face with smog alerts this summer.

Although not the only factor, vehicle emissions continue to be a major contributor to the problem, yet in the last 20 years the auto industry has made tremendous strides in reducing auto emissions to a fraction of what they used to be. Unfortunately, it is still not enough.

Vehicle exhaust emissions give rise to a number of different products that pollute the air, but there are three that are of particular significance. These are carbon monoxide, unburned hydrocarbons, and nitrogen oxides. Carbon monoxide is perhaps the most insidious pollutant, as it is invisible and has no smell. The other two pollutants, being unburned hydrocarbons and nitrogen oxides, combine with each other under the action of sunlight to produce smog.

Why we should be concerned is that these three components, together with other undesirable emission products, can have a serious effect on human health. The very young and the elderly are particularly vulnerable, as is anyone with either respiratory or cardiovascular prob-



lems. We also have to remember that some of the more deadly emission products are major carcinogens.

The Japanese experience has shown that substantial reductions in vehicle emissions can result when gasoline is replaced with GAIA fuel. The most significant reductions have been with carbon monoxide and unburned hydrocarbons, but some reduction in nitrogen oxide emissions has also been obtained.

We are in the process of conducting confirmatory tests in Canada, making use of Ontario Drive Clean facilities, and we are also having extensive emission tests done for us by Environment Canada at their Ottawa test centre. I am happy to report that the results we have obtained so far confirm that GAIA fuel can bring about substantial reductions in carbon monoxide, unburned hydrocarbons and nitrogen oxides. In addition, and this is in reference to global warming, a small but significant reduction has also been obtained in carbon dioxide emissions, which is one of the principal greenhouse gases.

One final point I would like to make is that the emission control systems on today's vehicles do not last forever. They deteriorate with time, and the result is that many of today's emission problems emanate from vehicles that have been on the road for more than five years. It is said that 80% of undesirable emissions are coming from 20% of the vehicles. We believe that GAIA fuel can play an important part in helping to reduce the emission problem associated with these older vehicles.

To talk more about GAIA and the automobile industry, I would now like to hand you over to Carl Wintermeyer.

**Mr Wintermeyer:** Thank you, Raymond, and good morning, honourable members. I am going to address the concerns of the auto industry when adopting new alternative fuels.

First some background on myself: I am a professional engineer and have just recently retired from General Motors of Canada Ltd, where I managed the research and development and new business ventures department for 16 years. I have had considerable experience with new business start-ups and strategic alliance formation.

During my time at GM, I received and supported many alternative fuel proposals and projects which helped our company move forward with a world-class centre in alternative fuel engineering in Oshawa.

Ontario is uniquely suited to introduce a fuel such as GAIA, as this is the largest industrial centre in Canada. The major car companies all have a considerable presence here, and the Big Three car companies have design centres and R&D centres in Ontario. In addition, GM has a very large vehicle cold test facility in Kapuskasing in northern Ontario, which is used by several other car makers as well.

We have world-class researchers in automotive systems available to us at our many Ontario universities, and a National Research Council lab in Ottawa that specializes in fuel research. We are therefore uniquely able to carry out a very comprehensive test and validation procedure in Ontario. New fuels are subject to a rigorous

test and validation process prior to being introduced in new vehicle car lines.

As you may be aware, warranty issues are of great concern to the car business. The car companies' approval will provide the assurance that GAIA fuel has no harmful effects on automotive systems and controls, and indeed has been proven to provide many beneficial environmental attributes as well as contributing to fuel efficiency. If GAIA wins, everybody wins, including the citizens of Ontario and Canada.

The initial data indicate that GAIA fuel has a great potential to substantially reduce pollutants such as nitrogen oxides, carbon monoxide and unburned hydrocarbons. In the months to come, we plan to test and validate these data with the car companies and then introduce this new product that will help reduce automotive emissions even further.

I would like now to introduce my colleague Ross Blaine, who will summarize this presentation.

**Mr Blaine:** Thank you, honourable members, for affording us the time to present this new, low-polluting alternative gasoline product. It has been a pleasure working with Carl and the automotive industry over the past 16 years. And, yes, the GAIA fuel alternative is an exciting new opportunity.

Business Development Consortium, my main company, has in over 18 years in business evaluated 70 new products to see if they could gain and maintain a strategic advantage in their new markets. Business Development Consortium has been involved with the introduction of 37 new successful business initiatives. None have the potential to make an immediate, positive impact on the environment as this product has. As you heard, testing in Japan has provided proof that GAIA reduces—not eliminates but reduces—hydrocarbons, NO<sub>x</sub>, CO<sub>2</sub> and carbon monoxide.

Preliminary testing in Canada at Environment Canada's test facility in Ottawa has shown in head-to-head, apples-to-apples testing that statistically, GAIA produces significantly fewer unfriendly pollutants than high-test gasoline.

In 1996, Business Development Consortium was asked by the Canadian Vehicle Manufacturers' Association and Industry Canada to determine where automotive research and development will be most productive in Canada. One of the top five areas was alternative fuels. Since that time we have monitored the alternative fuel industry. We have watched fuel makers try to commercialize their natural gas home fuelling stations. We have watched the demise of propane.

This confirmed what we already knew, that consumers would not change their buying criteria. These are: first, a new product must still be part of the current automotive refuelling infrastructure; second, not a higher price with a great-value story but the lowest price is why consumers will travel out of their way to get cheaper gasoline; and third, cost. Lowest price is what wins the day for commercial fleet operators who are faced with the day-to-day reality of bottom-line improvements.

**1030**

Here are the highlights of the GAIA alternative fuel story. This low-polluting alternative fuel can be used in gasoline-powered engines for cars, recreational vehicles and watercraft. GAIA effectively meets performance and pollution concerns without having to change traditional buying patterns. GAIA can be used just like ordinary gasoline. It can be put directly into a normal gasoline engine. GAIA can be run on its own or mixed with ordinary gasoline, all without developing any performance problems. GAIA will provide the pollution reduction solution needed to forward government pollution reduction objectives.

GAIA Energy intends to manufacture GAIA fuel for sale on a regional basis through three channels: first, municipally operated fleets for pollution reduction and cost saving; second, private environmental and cost-conscious commercially operated fleets which may be serviced from a limited number of strategically placed retail outlets; and third, through selected strategic partnering with upscale private branders.

To restate once again, the keys to success for GAIA as a gasoline alternative must be that it is priced at or below current regular gasoline prices; that it requires no change in the buying infrastructure; that it is safe for use in unmodified vehicles; and that it is lower-polluting, and this will only serve to protect us all from having more of those vehicle-caused smog days that negatively affected both our health and commerce this summer.

In conclusion, this project and this product, like any new business venture, needs the support of others to make it work. It needs to be given a chance. It needs to be able, while its buying capabilities are small, to have financial support that will allow GAIA Energy International to test its credibility in the fleets marketplace.

Ontario has been aggressive in reducing automotive pollution. GAIA is an immediate solution to pollution reduction, particularly in older vehicles. We are asking for the support of this committee to enable GAIA to be made commercially available to Ontario motorists by recommending that any fuel that reduces pollution be given the same kind of help that other alternative fuels are currently being given.

**The Chair:** Thanks very much for a most interesting presentation. We're almost out of time, but we'll give about 30 seconds to each caucus. Mr Gilchrist.

**Mr Steve Gilchrist (Scarborough East):** I appreciate your presentation and I look forward to hearing further results of the testing you're having done.

I'm a little curious about your final comment, though, and I wonder if you could share a few more details on precisely what you're looking for and the problems you've been facing so far.

**Mr Binions:** Currently in Ontario, gasoline tax is 14.7 cents. Propane is taxed 4 cents a litre. When propane first came out it had about a 12-year break where there was zero tax. Natural gas currently has zero tax. What we would like to see: our fuel is a totally different fuel than gasoline and it needs the same tax breaks natural gas and

propane gas received in the beginning, until we can develop the market. That's what we're asking the Ontario government for.

**Mr Parsons:** I'm a little confused, and I guess I'm trying to be sensitive in how I phrase the question. I'm not sure what your product is.

**Mr Blaine:** Our product is a gasoline alternative. It is made up of a blend of naphtha and different alcohols, and in turn burns cleaner and reduces pollution significantly in vehicles. It will be sold out of normal gas pumps.

**The Chair:** Our time is up. I really appreciate your presentation, and thank you for offering to come forward.

#### WIND POWER TASK FORCE

**The Chair:** I now call on our next delegation, the Wind Power Task Force. As you begin your presentation, please put your name on the record for Hansard.

**Mr David Boileau:** My name is David Boileau. Thank you to the chairman and to this committee for the opportunity to appear today. I'm the president of a company called Seine River Power and another company, Harmony Wind Energy. Seine River Power is a partner with Great Lakes Power, a great Ontario water power producer, in the 10-megawatt Valerie Falls water power station in Atikokan, Ontario. My other company, Harmony Wind Energy, has partnered with Great Lakes Power on a wind energy project. We hope to develop a business case for investment in a \$140-million, 100-megawatt wind park north of Sault Ste Marie and explore other wind energy development opportunities in Ontario.

In 1998-2000 I co-chaired with the MNR—a fellow by the name of David de Launay, who I think made a presentation to this committee earlier—the Water Power Task Force. This effort produced results that have helped renew water power in Ontario. Paul Norris, president of the Ontario Waterpower Association, is presenting to you after this presentation and he will update the committee on how water power can help meet the government's emission reduction objectives. However, today I'm here to talk a little bit more about wind power.

I know that the committee is interested in what's happening in wind power. I'm sure we've all seen an increasing amount of publicity about wind power penetration in the world, and more recently in North America. I guess I'll have to start off by saying that I was a skeptic converted on the way to Damascus. I've always believed that wind power was not likely to be competitive against other forms of generation, including water power, fossil generation and nuclear, and the reason was that it wasn't competitive. It was 20, 25 cents a kilowatt, selling into a market where four and five cents was the average wholesale price. But every year when I went to these trade conferences, these wind guys would have their little windmills up and I'd ask them, "What's your price for power this year?" It kept going down: four cents one year, five cents the next year, and pretty soon it was



down to 15 cents. When it got down to 10 cents, I said, "I'm a capitalist. I'd better start looking at this business."

Together with a partner, I went down to Minnesota to look at a US\$500-million installation in Buffalo Ridge, Minnesota, that's providing, by the end of 2002, 425 megawatts that was mandated by the state regulatory utility. I came back from there absolutely convinced that there was a place in the market for wind power in North America. Whether there was in Ontario I didn't know, because I didn't know what our resources were as far as wind energy speeds.

I know we have a very tight schedule and it's not possible to cover all the items and issues and progress we've made in the last year in Ontario, but I've prepared a package that outlines, first of all, wind power 101, because most of us don't really understand what the issues are around wind power, the huge technological advances and the reductions in cost. We don't understand what the resource is in Ontario in terms of wind speeds and whether in fact there is a resource. We don't understand what some of the constraints are for putting wind parks up, because there are some. There are environmental constraints; there's a tolerance from the public in terms of the number of towers that can be erected; there are certain places where it's not suitable. But there are also a lot of misconceptions. It's an eight-pager. I encourage you to read it at your leisure so that the next time I come back to make a presentation to this committee, you may have additional questions.

The second part of that package provides some background on the Wind Power Task Force and its terms of reference. I'll briefly bounce through that as it may raise some questions and issues as we move forward in this presentation.

The Wind Power Task Force effort was initiated by industry and led by industry. We approached the government back in January 2001 and suggested that because of emissions targets for the government and because of the success of the water power task force, it might be worthwhile to examine some of the issues surrounding opportunities and constraints for investment in wind power in Ontario.

There was a strong interest from the government. Building on the success of the task force, we approached six government ministries—the Ministry of Energy, the Ministry of Natural Resources, the Ministry of the Environment, the Ministry of Finance, the Ministry of Economic Development and Trade and the Ministry of Northern Development and Mines—and said, "Would you guys be prepared to supply some resources to our committee so we could better understand opportunities and constraints?" It wasn't a surprise to me that the government reacted very positively to that request and participated in a sincere and dedicated fashion over the last four or five months, starting in April, in a main committee as well as three subcommittees.

The industry representation wasn't a bunch of airy-fairy guys who came out from the woods and said, "We want to convert the world to wind power." These are serious investors, which included Ontario Power

Generation; Great Lakes Power; Seine River Power, my company; Regional Power; British Energy Canada; Vision Quest, a western Canada investor in significant wind resources out in Alberta; Suncor Energy, which operates one of Ontario's larger refineries; and Sky Generation.

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Manufacturers that were on the committees included Vestas Wind, the world's largest turbine manufacturer; Steelcraft, a company that fabricates steel and is interested in supplying steel components, particularly towers—it's an Ontario company; Enron, one of the world's largest marketers and manufacturers of wind power products and participants in the electricity and fuel industry; POWCO Steel, again interested in towers; Rockwell Automation.

On the service and skills side of it we had companies like Zephyr North, who are involved in wind resourcing; Blenkhorn and Sawle; Brock University; and Acres International.

Our approach here wasn't to develop a task force that said, "Let's build some stuff in the bush somewhere." We really wanted to look at the possibility of creating a critical mass of manufacturing, development, servicing and HRDC issues so that perhaps Ontario might position itself to supply all of North America and the world with wind power products, wind power resources and wind power skills.

I chaired the task force and we had a number of meetings, starting in April, for the main committee. We set some very specific terms of reference. You can read through what those terms of reference were. Primarily, the government ministries were providing resources and feedback on various policy suggestions and what the impacts might be on those policy suggestions. The task force was designed not to say that wind power was good and everything else was bad, but to look at how wind power would fit into the Ontario market and what contribution we could make to the government's objectives without putting down the other fuels. We needed to recognize very carefully the impact of any policy recommendations on rates, the stranded debt and stranded assets.

I'd like to come before you today and come up with a whole bunch of recommendations about what this committee and this government can do to set the climate for investment in wind power in Ontario. But our terms of reference called for us to complete all of our meetings and develop a draft report for final review by the main committee, and then at that time issue a final report from the industry task force, with a view to bringing it forward to the deputy ministers and the ministers of the six ministries that have been participating in the wind power task force. We would also, obviously, like to bring that report forward to this committee with a larger allotment of time, with the approval of the Chair, because we think this is going to be one of the centrepieces of the government's renewable energy strategy for Ontario, and we do need a renewable energy strategy in Ontario.

I will give you a brief snapshot of what I think the recommendations are going to address. On the regulation and incentive side of it, we're going to look at environmental assessment rules and make some recommendations around that, as well as emission trading and set-asides for renewables. We're going to ask the provincial government, we think, to support our efforts at the federal level, for the federal government to adopt a production tax credit. There has been one in the US there for seven years. It has just been renewed for another five years. It has provided a huge boost to the US wind industry, resulting in \$2 billion worth of investment in wind generation in the US this year. So we need your help, Ontario, and that of the Minister of Energy and the Minister of Finance, to encourage the federal government to do their part so that we don't lose investment to the US that should come to Ontario.

We'll be looking for Ontario to adopt some form of a renewable portfolio standard. This is a very successful measure that has been implemented in Texas, believe it or not, the home of the current President of the US. The policy on renewable portfolio standards was implemented when he was governor of that state. The target is 2,000 megawatts of wind power or renewable power in Texas by 2010, a very ambitious one, but it's already exceeding its schedule in terms of bringing on new generation.

The renewable portfolio standard is probably going to look at a graduated standard that brings a target starting at 1% to as much as 8% at the end of, say, 2010. We'll look at the impact of that on rates and on other generators to make sure it fits with the government's needs and with the needs of society in terms of preserving jobs and investment in this province and in terms of the competitiveness of our industry.

We'll also be making some recommendations on property assessment for wind towers and energy, and royalty tax on wind parks.

Another area is land-use wind resourcing and government-industry co-operation. When we started the task force, it was clear that the government did not have a strategy or a policy in place for releasing lands for wind park development. The reason for that is we haven't had any wind park development in this province so it didn't make any sense to have a policy for something that didn't exist. To their credit, MNR has embraced this challenge and has been working with the task force very closely in analyzing various policies that we think will help kick-start an industry. Our recommendations will speak specifically to that issue of releasing crown lands, which is 85% of our province, for the development of wind power.

Although private enterprise should be doing most of the resourcing in this province in terms of identifying the wind resource, there's probably a need for government to take a small role in establishing a number of benchmark towers to analyze wind speeds at high elevations. We've got lots of wind energy information in terms of winds at airports, but the elevations of those readings are 10, 15

and 20 metres high. Wind towers today are 85 metres high. We have to know what the wind regime is at the higher levels and there is a role for the government in co-operating on that.

Finally, in terms of land use, wind resourcing and industry/government co-operation, we think that there's real need for the release of GIS information, which the taxpayers have paid for, to the wind industry so that we can do our modeling and understand better where the best sites are in Ontario. I'd ask you for a second to consider wind somewhat like water. Many years ago we spent, in today's dollars, hundreds of millions of dollars analyzing what our hydrological resources were in terms of power and energy from water power. Today we're dealing with a new medium. Think of wind power like water power, just not quite as dense as water. There are wind rivers up in the sky—Niagara wind rivers, in fact—that deserve a priority in terms of development and investment.

So how do we find these wind rivers? There's a lot of investment from private enterprise that's going to be required to do that. Our company has committed \$1.4 million to Ontario this year, up to December, for wind resourcing, using some very sophisticated modeling systems as well as actual towers that we've been erecting. Other companies are doing the same thing.

On the manufacturing services and HRD side of things, again, we have to have a group of people who can build these things, erect them, service them, maintain them into their 25- and 30-year lifespan. We have to have a manufacturing industry, and we're not going to have a manufacturing industry in this province if we don't have a climate for investment in wind power. Why would somebody from Denmark come to Ontario and say, "I think we're going to build all our North American turbines in Ontario so we can ship them across the border to the US, where they have a climate for investment"? It's not going to happen. We're a little bit behind, but we're catching up, with the help of the people from the government on this task force, to identify the constraints and opportunities.

Finally, there is a need for the wind power task force to work with other associations and groups, including the Ontario Waterpower Association, our sister Ontario renewable, remembering again that a lot of the sources of fuel we have in Ontario—uranium, coal and gas—send royalty dollars and tax dollars out of the province. Water power and wind power keep those dollars in the province. They are Ontario's indigenous resources. We want to work with them, IPPSO and other groups in developing a renewable energy strategy for Ontario that we think might form the framework for the government moving forward to meet its emission reduction targets.

In the last section of this booklet that you have in front of you, there's a contact list of participants. I think you can see from it that we are a very serious group, very focused on bringing forward and identifying the opportunities and constraints to investment.

In summary, I'm going to make a few comments and then open it to questions. One question that I think will



come up: is wind reliable? I'll provide answers in more detail later, but the answer is yes. There are some interesting things that have happened with wind in the last 10 or 15 years. We realize now that wind blows most in the winter time when our loads are high. On cold, windy, winter days wind production is high, and the wind production in Ontario would match the daily peak, from roughly 2 o'clock in the afternoon till 8 o'clock at night. The other interesting thing about wind is that it's pretty consistent year over year; it doesn't vary by much more than about 10%. So, from a predictability standpoint, we know it comes in the winter, we know it comes at a time of day that we need it and we know, year over year, roughly what the energy outputs going to be.

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Equally important, we can predict 40 hours out, plus or minus 10%, what the wind energy production from plants in Ontario, or anywhere in the world for that matter, is going to be every day. If we can predict 40 hours out, we can schedule other standby generation, like fossil generation or gas-fired generation, to come in between.

As well, there's a real opportunity to marry wind with water power—storage water power with reservoirs—so that you have a combination of generation that must run. Wind must run when the wind is blowing, and when the wind isn't blowing, there are opportunities for filling the void with storage water power. And there are some incentives there that we'll be making some comments on, again trying to keep our dollars in Ontario and our jobs and investment in Ontario.

Can wind make a significant contribution to Ontario's energy and environmental objectives? The answer is yes. I could go on for 20 minutes on that, but you'll get that in our report.

Is it a magic bullet? No, it's not a magic bullet. There are some who would suggest to you that there's enough wind power in Ontario to run all of Ontario. That's great, but the wind doesn't blow all the time. There's still a real need to sustain the investment we have in our existing generation, nuclear and fossil. If it's due to be retired and it's at the end of its useful life, fine; wind has a role to play there. If there's load growth, which we expect there will be, great; wind has a role to play there. But it's not a magic bullet. Together with water power, I think it could provide up to 40% of Ontario's electricity. Water power already provides 25% or 26%. Add some good, quality, high-value wind power and you've got a mix where Ontario can stand in front of the rest of Canada and say, "We've really done a good job in meeting our emission reduction targets and our renewable energy targets."

In summary, the challenge for this committee, industry, environmental groups and citizens is to work together to develop a renewable energy strategy for Ontario that meets the following objectives:

One, and very important, we have to encourage new investment in renewables that are competitive without direct subsidy. It just doesn't wash to go around and say, "We're going to hand these guys an extra three cents or

four cents a kilowatt to build these things." That's not going to happen. I don't think the taxpayer or the ratepayer and industry can afford that. We would lose huge jobs and investment. We have to be conscious of our competitive position in this province and in North America. But we can achieve investment in wind through the intelligent use of tax incentives like the production tax credit in the US and other incentives like the renewable portfolio standard, and we will address that issue in our report. I remind you that the US has just passed its extension of the production tax credit for an additional five years. The investment that flows from that is estimated to be over \$10 billion. We should get a piece of that.

We have to ensure that the programs to reduce emissions and promote renewables do not significantly increase the cost of electricity, thereby hurting Ontario consumers and the competitiveness of our industry. I've said it before, I'll say it again: we cannot have a situation where Ontario is non-competitive. I think wind can come in there and achieve that.

We have to make sure that any initiatives on emission reductions and renewables don't strand existing viable generation, whether it's nuclear or fossil, whether it's coal or gas. Those things have a useful life. The ratepayer has invested a considerable amount of money in them. When they're at the end of their useful life, sure, it's a good time to retire them and we have to have a renewable industry there to replace them.

Finally, any renewables and emission reduction targets should work to encourage jobs and investment in Ontario's indigenous resources, which are wind and water power. As I mentioned before, we need to develop a domestic market for wind generation or we won't be able to encourage manufacturers, service providers and educators to provide a critical mass that could make Ontario a leader in wind energy in North America.

**The Chair:** Your more than 20 minutes are up, if you would just wind up.

**Mr Boileau:** Actually I didn't start till 10:37, because those other guys took all the time.

We will, with the approval of the committee, return and present our report. It will be a good-news report, and the recommendations will be positive and constructive and will carefully consider implementation issues, impacts on ratepayers, other generators and will quantify environmental benefits associated with what we hope will become a renewable energy strategy for Ontario. One of the biggest parts of that is the serious commitment this government has made to this task force. I have to commend the government for this. This is the second round for us on renewable energy—the first one was water power—and I continue to be impressed with the serious commitment and dedication they've given to this effort.

**The Chair:** Thank you very much for the presentation. I'm very enthused with the contents of the pamphlet you've given us. We look forward to your final report. Certainly we would like your final report. It's my

understanding that you're tabling it at the end of next month. Stand by, the committee may want to invite you back for a more in-depth discussion, but that's up to the committee.

Thank you very much for your presentation.

**Mr Boileau:** Thank you, Mr Chairman. Were there any questions?

**The Chair:** Sorry, we're out of time. My apologies.

#### ONTARIO WATERPOWER ASSOCIATION

**The Chair:** We'll move on to the next presenter, and that is Paul Norris, president, the Ontario Waterpower Association. You've probably heard 20 minutes, and what's left over is divided up among the caucuses.

**Mr Paul Norris:** Yes, and David spoke on water power for at least five of those 20 minutes, so I'll keep mine down to 10 or 15 minutes, because I know there should be some discussion here.

Thanks very much for the opportunity to attend this session. I think it's an important and a timely initiative on behalf of the government, specifically to its environmental health and safety objectives in the action plan.

I'm Paul Norris. I am the president of the Ontario Waterpower Association, as Dr Galt has said. I'm familiar with the work that Dr Galt and committees like this have done, for example, on low water, and I'm quite confident that the outcome will be another positive policy step for government.

As you can appreciate, water power resources in the province are our primary renewable energy source, and have been for some time. I'm confident that in your deliberations and your recommendations to government, water power can make an important contribution. I too share David's enthusiasm with the concept of a renewable energy strategy for the province, something we simply don't have in this province.

Our association was founded in May of this year by a consortium of water power producers. We have Ontario Power Generation, Great Lakes Power, Abitibi, Inco, Regional Power, Seine River Power, Orillia Light and Power, Bracebridge Power; about 96% of the water power generation in the province is represented by our association. We've been very active in providing input and advice on public policy generally, environmental assessment, emissions reductions, a number of initiatives that I think have implications for this industry.

Water power has been in the province for about 150 years. Only about 50 years ago all of our energy came from falling water. I think we have taken for granted this indigenous resource. I think we've taken it for granted at our peril. We are working very hard to renew the public understanding of and interest in the water power resources of the province.

Today about 26% of our energy, as David has suggested, comes from water power resources, a little bit less than from fossil fuels. We have 8,150 megawatts installed in the province of Ontario. That represents an annual average energy production of about \$1.7 billion.

We have about 60 different water power producers in Ontario. Notwithstanding that OPG has about 88% of the market right now, we've already seen initiatives, for example, on the Mississagi to decontrol some of those assets, and we have everyone from a 500-kilowatt small power producer to Great Lakes Power and Abitibi and Inco and others.

The industry directly employs about 1,600 people, and there are another 2,000 jobs that are dependent on the industry. The last time we had a water power policy for Ontario, a renewable policy for the province, it was as a result of Ontario Hydro's demand-supply projections in the late 1980s, where they proactively encouraged water power development in the province. We had a Ministry of Energy with a very strong small-hydro program, and in fact investing taxpayer resources in assessing water power potential. We had the Ministry of Natural Resources with a proactive allocation policy with respect to water power resources. And as I say, we had Ontario Hydro, which was offering power purchase agreements supporting renewable energy. None of that exists today; it hasn't existed since 1993. I think this committee has a unique opportunity to build on some of the relationships that have already been fostered with government in the last two to three years.

As I say, we have about 200 water power facilities in the province. Some people may be surprised that more than half of those are south of the French/Mattawa. In northern Ontario, water power represents about 85% of the electricity provided. Within 10 kilometres of every major town in the north there is a water power facility.

As I said, we have Abitibi and Inco. Clearly forestry, manufacturing and other industries have benefited from indigenous resources of water power.

There are only about 50 river systems in the entire province that support water power resources, so notwithstanding the fact that there are 200 facilities out there, if you look at the systems that water power is located on, estimates—David alluded to government investment in water power potential assessment. They've assessed about 2,200 sites, only 200 of which have ever been developed. If you count the river systems, there are probably fewer than a dozen that support 90% of the water power production in the province.

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Another interesting thing that we've continually raised with the Ontario government and the Ministry of Natural Resources is that the royalties the crown receives from water power resources in the province are the single largest resource royalty received by the province—larger than the forest industry, larger than the mining industry, larger than the aggregates industry or any other resource industry. It's about \$140 million, \$150 million a year in crown royalties that accrues to the province and to the consolidated revenue fund.

We've undertaken an assessment in the industry of the known potential that is developable in the province of Ontario. There's about 1,300 to 1,500 megawatts available in just redevelopment or upgrading of existing



facilities. Previously assessed sites by Ontario Power Generation and some other companies suggest that there's probably 200 to 300 megawatts of new, undeveloped potential in the province, and that's without doing any kind of detailed assessment of the facilities or the sites that exist in the province. We're working very hard with the Ministry of Natural Resources on their allocation policy, we're working with the Ministry of the Environment on a proposed class environmental assessment for this industry and we're very active in promoting new development opportunities in the province.

In 1999, when I was part of the industry task force, Environics did a public opinion poll and asked Ontarians about green energy. If you don't have a copy of the opinion poll, I'd be glad to get it for you. In essence, the public of Ontario feel that the majority of the energy comes from falling water, and that's a myth that's associated with term "hydro." At that time the public also supported new investment in renewable energy. They identified water power and wind power as the top two forms that they recognized as green energy and, the often asked but never tested question about willingness to pay, indicated a strong interest in supporting renewable energy technologies. We saw in the delayed market openings a number of companies indicating interest in offering what they termed to be green energy.

I want to talk a little bit about the process that the wind power group has gone through, and I'll be tabling their report. The water power industry did the same thing in 1998-99. We prepared this report and tabled it with the Ministry of Natural Resources. An industry task force was formed—co-chaired by the Ministry of Natural Resources and involving energy, northern development and mines, environment, the Ministry of Natural Resources and the water power industry—in essence to assess the implications of the deregulation of the market on this industry and provide recommendations to the government with respect to how the relationship between this industry and government would work in the absence of an Ontario Hydro.

The outcome of those deliberations has been a very positive relationship with the various ministries. The most notable outcome is the creation of the Ontario Waterpower Association as a collective voice for the industry to government. I think it does serve as a useful model in considering governance relationships between the renewable energy industry in Ontario and the Ontario government.

Most notably, I think, from government's perspective, they invested \$16 million over four years in the Ministry of Natural Resources to improve their ability to assess the degree of water power potential in the province and also to work with the industry on some pretty core business of theirs: tenure, allocation and resource management planning. That commitment really was the impetus for the Ontario Waterpower Association to work collectively.

I talked a little bit earlier about, and David mentioned, the concept of a provincial renewable energy strategy. In my view, this is one plank in your deliberations that could come out as really good news, a positive step

forward. In fact, most of the building blocks are already there. It's just never been formalized.

One outcome of the deliberations in the water power task force was the agreement of the Ministry of Finance to re-evaluate the methodology of assessment. In December of last year they passed Bill 140, which has resulted in an estimated \$100 million of new investment in water power in the province. It put the water power industry on a level playing field with the gas fire generation. They weren't asking for any special exemptions or exceptions; they just wanted a level playing field. You've seen announcements from Great Lakes Power on High Falls, we know that Abitibi is interested in re-evaluating its potential at Iroquois Falls, and we know the Great Lakes Power is looking at their facility on Ear Falls. I would suggest that type of initiative will be one of the key factors in consideration when OPG sits down and develops their business case for Beck 3.

In the July 2001 amended regulation for emissions cap credit and trade, we saw the introduction of the renewable setaside. There's another building block that the government has introduced from that ministry, and that was as a result of input provided by IPPSO and members of the renewable community. Also, environmentalists were very interested in seeing a government commitment to renewables.

As I said, MNR is actively developing its resource allocation policy. We will see the Ministry of Natural Resources proactively RFPing water power development potential in the province: again, another strong message that government is committing to water power development. And, as David suggested, this association is working with the wind power task force and IPPSO to provide the government with some insight with respect to the advantages of the renewable portfolio standard.

So, you see, there are a number of initiatives that have happened as a result of the restructuring of the electricity market that have influenced the renewable energy policies of the government. But there is no overall vision right now that exists. I firmly believe that one of the outcomes of this committee's deliberations could be that vision: to put these things together and build on the existing relationship with government that the water power industry enjoys and the wind power industry is currently working on.

In conclusion, I'd like to say that we only have until May, from our perspective. We have been working very hard with the various government ministries, with the federal government on Eco-Logo and green energy strategies. We have been working since 1999 and we have, from the water power perspective, a lot of the building blocks in place that the wind energy group is working on right now. I am very confident that we can deliver to you, collectively or individually, a very strong message with respect to renewable energy in this province. I'll close with that. Thank you for your time.

**The Vice-Chair (Mrs Marie Bountrogianni):** We have about two minutes per caucus. It's the official opposition's turn.

**Mr James J. Bradley (St Catharines):** My first question relates to the environmental assessment process as it relates to the smaller projects. Even some of relatively little consequence, in the view of some people in a local community, deserve an assessment. It may have an effect on a marina, for instance, if it's near a marina. There is the problem of potential leaching of mercury that occurs naturally in soil if there is flooding that takes place anywhere. What is your view on the environmental assessment process that is in place now? Do you think there are any changes that you would recommend to it?

**Mr Norris:** That's a very good question. The environmental assessment process that has been put in place is very similar conceptually to a class environmental assessment process for energy production. I think it noteworthy and I agree with your assessment with respect to size. We've argued always that it's the local impacts that have to be considered. That's why you'll see, for example, in the screening mechanism that there is no minimum barrier for water power. It's five megawatts, I think, for gas, two megawatts for wind, and for water power it's zero.

What we've been doing is to work with the Canadian Environmental Assessment Agency, the Department of Fisheries and Oceans, the Ministry of Natural Resources and the Ministry of the Environment to assess the degree to which a class environmental assessment process focused on water power may better serve both the local interests and the interests of the water power proponents.

In my view, the introduction of the new Environmental Assessment Act regulations was a good step forward. There still are a number of other regulatory requirements that have environmental implications, not the least of which would be the Lakes and Rivers Improvement Act or the federal Fisheries Act, that we need to work very hard to bring together in the concept of an environmental review process. We're working very hard to try to develop that.

**Mr Bradley:** A quick comment: it was music to my ears to hear you mention Beck 3. I was talking to Vince Kerrio, a former Minister of Natural Resources and Energy, last night. We were talking about Beck 3, which I think a lot of people on this committee hope that OPG will proceed with. I realize that's only one project, and it's OPG—it's a big project. But the more we can see these water projects working without the same kind of environmental implications that other methods have, it's much more positive for your organization and your initiatives.

**Mr Norris:** Absolutely.

**Ms Churley:** Thank you for your presentation. I wanted to follow up, actually, on Adam Beck. OPG is a member of your association. It is, isn't it?

**Mr Norris:** Yes, it is.

**Ms Churley:** They were here giving a deputation yesterday, and I think all members of the committee asked about Adam Beck 3. We know that there has been a full EA done, and they said that they had done an analysis, and hopefully we'll get a copy of that. I'm just

wondering what you know about why it's being held up. It just seems to make big enough common sense.

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**Mr Norris:** Yes. Well, the individual members of our organization keep their business—

**Ms Churley:** Sure, I understand that, but I was just wondering what your opinion is.

**Mr Norris:** The only thing I would offer is that we've seen, for example, as I suggested, since the one measure that has been put in place so far, and it's not to discount the other regulatory mechanisms that could be put in place, but the measure on taxation, when we had an industry-government summit earlier this month has directly influenced the development of business cases for a variety of facilities. I would suggest that will be a critical component of their discussions internally with respect to the viability of Adam Beck, but we know for example that OPG is very interested in pursuing redevelopment opportunities in the northwest, and we've seen Abitibi and Great Lakes come up with similar types of initiatives. I can only say that those types of initiatives and renewable portfolio standards and that type of renewable energy support from government and vision from government could only result in helping that situation.

**Mr Ouellette:** I'll be quick because Mr Gilchrist has indicated that he has a question as well.

Earlier on this year, in May, I saw the results of water power generation on pickerel spawning in Pancake Bay as well as in Madawaska, the nesting habitat of ducks, for example. What was taking place was that the water levels were high, the pickerel came in to spawn—they needed the energy and let the water down and all of a sudden all the eggs were exposed. What is your industry doing to ensure that these sorts of things don't happen, so that the environment isn't damaged?

**Mr Norris:** Our industry is working very closely with the Ministry of Natural Resources right now. I guess the analogy would be forest management planning for water power. In the absence of Ontario Hydro, which had a public interest mandate, the Ministry of Natural Resources and the water power industry—it's reflected in this document and I'll be glad to get you copies of this—have introduced a formal requirement under the Lakes and Rivers Improvement Act to undertake each facility to develop a formal water management plan that looks at the existing operating regime and goes through a process of identifying environmental, social and economic objectives of the manipulation of water levels and flows. It goes through a public involvement process that ensures that the various resource users and resource uses are brought to that dialogue. That's a relatively new concept for the water power industry and it's one the industry has embraced and is working with. Madawaska was actually the first successful water management plan that was developed.

**Mr Ouellette:** Yes. Last year, for example, the Madawaska developed huge industries and, to put it bluntly, there were not a lot of happy campers there. The



water levels were so low at the Bark Lake facility site that it completely destroyed the industry for that season, according to them, as they expressed to me. So we're seeing a number of examples here: at Pancake Bay, where pickerel spawning was destroyed that year, and in Bark Lake the association is dependent on the new reservoirs that had been established and they lost that industry for the year. So I hope it goes a lot further, because I haven't seen a lot of commitment in the small examples that I have seen out there to ensure that we're protecting those environments.

**Mr Norris:** I assure you that that is the primary resource management strategy in the concept of a new business relationship with the industry. We're working very hard with our industry members to actively get involved in water management planning. It is a step ahead, and I understand your concerns.

**The Vice-Chair:** Thank you very much. Mr Norris, for the record, could you repeat the name of the document you'll be forwarding to us?

**Mr Norris:** I can forward you Toward a New Business Relationship. This is a report that was tabled with the Ministry of Natural Resources in November 1999. It deals with water management planning, allocation and taxation. I'd be more than pleased to come back to talk to the committee further with respect to our new energy strategies.

**The Vice-Chair:** Thank you very much for that and for your presentation.

### POLLUTION PROBE

**The Vice-Chair:** Next I believe we have Mr Ogilvie, executive director of Pollution Probe. Welcome.

**Mr Ken Ogilvie:** Thank you. I'm very happy to be here. I want to indicate our support for this particular committee and its work. In fact, we think this may be one of the most important committees, perhaps the most important committee, in terms of inserting into particularly the electricity market, but perhaps other areas, some environmentally friendly provisions that don't currently exist.

I think most people know Pollution Probe. We're an organization that's been around for about 30 years and really works on research, education and advocacy for practical results.

I wanted to note in starting that the government of Ontario is already publicly committed to "favour more environmentally preferred forms of (electricity) generation and penalize those forms of generation with a more negative environmental impact." This commitment was stated in the 1997 document *Directions for Change*.

Before I begin, I would also like to say that I'm not going to talk about alternative fuels such as natural gas vehicles and so on, but we do support some of the proposals that I think are going to be put forward or have been put forward by Enbridge Consumers Gas in that regard.

Again, returning a bit to history, on August 14, 1998, Pollution Probe presented views on electricity restructuring—in fact, to Dr Galt in front of the standing committee on resources development during the hearings on Bill 35. I've resubmitted copies of our presentation, since some of those points that we made at that time are relevant. I will touch on some of those today.

In our standing committee presentation we've of course noted the very high levels of five major pollutants from coal-fired utilities throughout the US Great Lakes states, northeastern states and Ontario. I'm referring to sulphur dioxide, nitrogen oxide, particulate matter, carbon dioxide and mercury. The emissions of these pollutants were, and still are, at levels that threaten human health and the environment. In fact, the levels of most of those pollutants, if not all of them, have increased since that time.

On the other hand, substantial reductions can be achieved from coal plants for all of these pollutants except carbon dioxide, but again at considerable cost. Much larger emission reductions can be achieved for all of the pollutants, and in particular carbon dioxide, by promoting energy conservation, energy efficiency, and increased use of renewable energy, and on a shift basis by moving from coal to natural gas as an energy source.

I'm going to resubmit a document that I put out a little over two years ago, a summary report on Environmental Protection in a Competitive Electricity Market. This report is our most recent publication on this subject and contains an analysis of policy measures to promote energy conservation and renewable energy which we would like the select committee to consider for recommending in Ontario.

I'm going to focus my deputation today in relation to electricity generation and also focus on energy efficiency and renewable energy sources.

Starting with energy efficiency, I want to note that's the head of the chain as far as we're concerned in terms of priorities because energy conservation and efficiency measures are the best alternative fuel source that we have, and there's considerable potential there. They lead to lower energy bills for consumers, stimulate creative industry responses, and develop new market opportunities for entrepreneurs.

I'm going to talk about a couple of ways in which utilities can be given incentives to invest in energy conservation and in fact are doing it and showing that it works, and then come back to something I spoke about three years ago, which was the system benefits fund.

Utility-sponsored energy conservation programs: during the past 10 years, Pollution Probe has participated in Ontario Energy Board hearings to promote utility-sponsored energy conservation programs. Energy conservation programs not only stimulate pollution reduction, but also save money on consumer bills.

Ontario's electric and natural gas distribution utilities are ideal organizations to help residential, commercial and industrial consumers conserve energy for the reasons that they serve all the electric or gas consumers in their

franchise areas, they are trusted sources of energy information and services, and they're all regulated by the Ontario Energy Board.

In 1998, the OEB linked the profits of Enbridge Consumers Gas to its success at reducing its customers' bills by increasing energy efficiency. As a result of this profit incentive, Enbridge developed the best utility-sponsored energy conservation programs in Canada. Specifically, in 1999 Enbridge's energy conservation programs reduced its residential, commercial and industrial customers' bills by \$57 million. As well, under the OEB's shared savings mechanism, Enbridge's shareholders earned a bonus that equaled 8% of the total bill savings, or \$4.8 million in savings.

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The year 2001 projections for Enbridge are that it will reduce customers' bills by more than \$100 million. This of course will help with the province's anti-smog action plan goals as well as its Kyoto target that has to be discussed and dealt with in this province.

Unfortunately, the Ontario Energy Board has adopted regulatory rules that financially penalize electricity distribution companies if they reduce their customers' bills by increasing energy efficiency. Under their rules, if an electric utility reduces its energy conservation expenditures, the savings go to its shareholders, but if it increases spending on energy conservation, it can't recover its increased costs from its customers and it also loses sales, hence revenues and profits. Unlike Consumers Gas, the electric utilities are not eligible for a shareholder conservation bonus if they reduce their customers' bills by increasing energy efficiency. One of our recommendations is that the select committee look into this and recommend that the OEB adopt regulatory mechanisms for electric distribution utilities that reduce customers' bills by increasing energy efficiency.

The system benefits fund, often referred to in the US as a public benefits fund or various words, refers to benefits that are attributable to investments in energy efficiency and renewable energy. The most common way to assemble the fund is through a non-bypassable user-based charge, or what's called a wires charge in some areas. This charge ensures continued funding of public benefits that may be ignored in a restructured, competitive electricity system. According to the American Council for an Energy-Efficient Economy and the Union of Concerned Scientists, US state public benefit funding commitments exist for approximately 20 states and range from 0.1 to as high as 4.0 mills per kilowatt hour. In New York state, based on two years of analysis of operation, \$72 million was spent, generating \$54 million per year in savings and leveraging \$3 for every dollar of investment put in by the fund. The projected savings in energy use by the year 2005 are as much as 1,400 megawatts.

System benefit funds have a variety of potential applications from competitive bidding and auctions for new generation, incentives for emerging technology, research and development, green market development, economic development, education and so on. Pollution

Probe recommends that the committee study and report on these funds and consider recommending implementing an appropriate mechanism for Ontario.

Finally, renewable energy: any credible strategy to address smog and climate change will have to include policies that facilitate a very dramatic increase in the production of energy from what I'll call low-impact renewable energy sources, including wind power, solar, suitable biomass power, and low-impact hydroelectricity. Pollution Probe supports a renewable portfolio standard, and I'll speak to that briefly, as well as the recommendations of the Clean Air Renewable Energy Coalition, of which we are a member and which I believe is making a deputation to this committee, so I won't speak to that today.

The renewable portfolio standard, and I think you know this, requires electricity suppliers to include a specified fraction of renewable energy generation in their supply portfolio as a condition of doing business. The environmental benefits of course depend both on the level that's set for the generation sources and the sources that are being replaced by renewable energy. There's an economic impact that depends again on the level set and the premium that's paid for the renewable energy. I would note, though, that this premium in other jurisdictions changes over time as renewable energy technologies are developed, penetrate the market, and their cost comes down. So some programs sunset over a period of time.

According to the ACEEE and the Union of Concerned Scientists, renewable energy standards in the US range from 1% to as much as 30%. That reflects differing circumstances and political commitments of various states. Renewable portfolio standards in the range of 5% to 10% by the year 2010 are not uncommon. Again, it requires analysis and thought, but it's quite doable and there are a lot of states doing it. So we recommend that this be an issue that the select committee study and report on, and we would hope to see implemented an appropriate standard for Ontario.

To summarize, in the short time available in the last week and a bit, with the government keeping us hopping on emissions trading proposals, we really couldn't assemble the kind of expertise—we would have liked to flesh this out a bit, but we would like to participate with your committee through its deliberations and come back with more detail and updated information on issues of interest. Thank you very much.

Oh, one last mention. I can't table this today, but for about four months we've been working on a renewable energy primer. We send these primers out to everybody from the industry, governments, environmental groups for validation before we actually make them public, but I will submit this to the committee sometime in the next month or so as a finished product. It's meant to explain renewable energy in fairly simple terms, but there's a fair bit of content and useful information in this. I'm just not prepared at this point to table it, since it has some corrections to be made. Thank you.



**The Chair:** Thank you very much, Mr Ogilvie. It's good to see you once again.

We have about two or two and a half minutes max for questions, starting with Ms Churley.

**Ms Churley:** Thank you for your presentation. It's true this all happened very quickly, and we will have an opportunity later on, in the second phase, to come back to some people.

I wanted to mention that we had the OEB in on Tuesday, I guess, and certainly a clarification was made by Mr Laughren that they have to operate within government policy. So I think this committee, from what I understand, is quite interested in directing the government to direct the OEB to change its policy around this. We think it's critical.

I wanted to comment that energy efficiency and the externalities around the dirty fossil fuels that we burn are never taken into account when we talk about special financial incentives and efficiencies and tax incentives and those kinds of things. People throw their hands up: "We can't do that." But the reality is, the nuclear and fossil fuel industries have been subsidized for years. I think that's one of the issues we've got to get out there if we're going to be able to move forward on this.

**Mr Ogilvie:** In fact, I was looking around for information on the scale of the subsidies. I got some good US information, but I couldn't get the Canadian information I wanted in the time available, and my normal expertises were on holidays, so I couldn't put that in. But I would have made the same point, that there are massive subsidies behind nuclear in particular, and behind other forms of electricity, as well as wind and other forms, in the US and Canada and in other countries. Those subsidies have to be looked at because they not only create a market but they create a barrier to entry of new technologies. That would be a very valid line of inquiry too, I think, for the commission.

**Ms Churley:** Just in closing, we don't have time to discuss it now, but energy efficiency and conservation is on our list, you'll be pleased to know. I suggested it on the first day and the committee agreed to put it on as well. It's something I have a great deal of interest in, and it will be part of this committee's mandate to follow up on that. I'm glad you put it first, because I support your assertion that it has to be the number one priority.

**Mr John O'Toole (Durham):** Thank you very much for your presentation and your ongoing commitment to sustainable electricity and energy sources. We've really had some very informative input and documentation, and certainly your report, which I haven't had quite the time to go through.

I just want to comment and maybe ask a question on energy efficiency. As I think Ms Churley has pointed out, it is certainly the first step that's required to make sure we don't build more capacity on the generation side and keep abusing the consumption part of the equation.

We heard a very important presentation from one of the current municipal electrical utilities in the Owen Sound area, I think it was.

**Interjection:** Collingwood.

**Mr O'Toole:** Collingwood; pardon me. The off-peak loading I think is important perhaps in respect to the energy efficiency point you made here of lowering bills, and yet you said they can't, because of the OEB regulations, enjoy the benefits of trying to be more efficient. Perhaps you could just explain briefly what we could do. I know you've made a recommendation here on that.

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**Mr Ogilvie:** The mechanism simply says that if the utility—the gas companies do this; Enbridge does this—invests in something that saves energy for its customer, then there is no incentive to do that in a competitive market if you're losing sales and increasing your own costs. But if in the process you are going to be given back by the OEB some of that money as profit, you're going to in fact capture your costs back as well as a return on your investment, then the company has a business case basically to look for those savings and argues these things in front of the OEB in terms of targets and what's appropriate in terms of when they get savings and get money back. This is a mechanism that's worked extremely well for Enbridge.

What they didn't show is that before Enbridge had that shared savings mechanism, it never met its efficiency targets and there's a reason for that: it wasn't a good business case. So I think from a Pollution Probe point of view we're very pragmatic. We understand that business needs a business case, we understand that people need energy and so on, but there are huge opportunities out there to kind of realign the system and achieve multiple objectives that I think the government has said it really wants to get. I can get you more detail if you want; a lot of detail on specifically how Enbridge achieved its reductions, but you may want to ask them directly too.

**Mrs Bountrogianni:** Thank you very much for your presentation. We're looking forward to the primer in laymen's terms. We're looking forward to it very much, some of us who aren't engineers.

If we're sort of looking at short-term and long-term changes to effect better change in sustainable energies, in the short-term what would you propose to this committee to propose to the government?

**Mr Ogilvie:** Energy efficiency, of course, is the immediate opportunity. Again, the shared savings mechanism, that kind of approach where you have a win-win situation, runs itself once you put the framework in place. That's a very important short-term one.

Things like renewable energy require tax incentives, they require things that take a bit of time to get through the normal government channels. There's a lot of pressure on Paul Martin to come up with some consumer credits for renewable energy and so on. These things take several years usually to get through the policy process.

There are short-term opportunities in niche markets where consumers are willing to pay extra, but the history of this is that it's very difficult to get consumers to pay very much extra, or very much of the market to pay extra,

without some kind of massive public education and support. I think efficiency is there both in industry and in utilities. There are huge technologies on the market already.

The other piece I'd mentioned, because it's not divorced from this, is the emissions trading proposal which we unfortunately are having to oppose publicly today, whereas in principle we support a good trading system. It's been botched up badly. It's a mechanism that can actually put a price on efficiency, the carbon trading system, for example, that the greenhouse gas trading system will be a substitute for, say, tax credits down the road. People can save money by investing in renewable energy simply by getting a carbon credit. That's not in place. Ontario should put a pilot program in place. It might take a couple of years, or a year or so, to think out a pilot, but you could instantly give an incentive to many industries that have technologies on the shelf and could come and tell you right now that they can do it. But, again, the business case isn't there without some kind of a boost.

I think efficiency, as well as a properly designed emissions trading system, would drive the market. We, unfortunately, at this point, don't have one of those.

**Mrs Bountrogianni:** Right. Thank you very much.

**The Chair:** Thank you very much for the presentation. I would appreciate if you could table for us the difference between carbon trading versus emissions trading; you made a difference there. I'd appreciate that. Not now; we're out of time.

**Mr Ogilvie:** The trading system that's proposed now is for nitrogen oxides and sulphur dioxide. The one that's under debate, of course, is part of the Kyoto Protocol and internationally is greenhouse gas trading. The two are completely linked.

I could table for you a report that Pollution Probe did for Environment Canada on the co-benefits of dealing with greenhouse gases, because if you focus on greenhouse gases you're going to pull down a lot of air pollutants with it, and if you make greenhouse gases in the business case of the companies that are out there, then they will pursue that automatically too.

There are ways of lining these things up to work together, and I would encourage this committee to think in broader terms.

**The Chair:** Thank you very much for coming forward, and stand by for possible recall from the questions and some of your input.

#### ONTARIO TRUCKING ASSOCIATION

**The Chair:** Our next delegation is the Ontario Trucking Association: Steve Laskowski and Barrie Montague. Please state your names for the sake of Hansard as you start.

**Mr Steve Laskowski:** Good morning, everybody. I'm Steve Laskowski from the Ontario Trucking Association. I'm the manager of policy development. I'm joined by Barrie Montague, OTA's vice-president.

Very briefly, the Ontario Trucking Association has been an association since 1926. We have approximately 1,700 members, with revenues last year exceeding \$2 billion. What we'll do today is walk through some generalities regarding alternative fuels in the trucking industry. We'll walk you through our recommendations, what we believe the Ontario government should be looking at and should be doing, and then very briefly go through in more detail the development of the diesel engine and why the trucking industry and other modes of transportation use the diesel engine.

OTA supports the exploration of alternative fuels that provide the transportation industry with the fuel requirements necessary to support the provincial transportation freight sector and that improve air quality.

Regarding alternative fuels in the trucking industry, presently there are many such fuels under investigation. They include propane, alcohol fuels, biodiesel and liquefied natural gas. However, each alternative fuel brings operational issues, environmental issues, and issues of safety, availability and price.

For example, the Harvard Center for Risk Analysis did a study in 2000 and found that a frequent complaint from drivers who use liquefied natural gas, the gas that many proponents and analysts feel is the best alternative to diesel fuel in the trucking industry, was that there was a notable loss of power in the engine. Furthermore, the introduction of alternative fuels has been shown to have unforeseen problems in seals, gaskets, o-rings etc. Basically, diesel works for a time but the trucks have been breaking down. However, recent developments in a liquefied natural gas product show much promise in overcoming many of these difficulties. The product is in the test stages and may offer the long-haul trucking industry the same power, fuel and size requirements currently offered by diesel engines.

Nonetheless, even if these system requirements are overcome, an LNG distribution and refuelling infrastructure would have to be created throughout North America. In light of this issue and of the other issues I mentioned previously, there is no readily available alternative fuel source that offers the trucking industry the power and size requirements for existing payloads. For example, a recent study conducted by Charles River and Associates determined that if all the trucks on the market today had to switch from diesel to liquefied natural gas, we'd have to increase the fleet size by 50%. That would mean that in the United States you'd see an additional 1.1 million trucks, and in Canada 350,000 trucks.

Ultra-clean diesel fuel and engines are the viable alternative. Truck diesel fuel and engines are a much cleaner source of energy and transportation than they were just 10 years ago. Today it would take about eight trucks to equal the emissions from one truck just 10 years ago, and the news only gets better for the trucking industry. In 2006, we'll see ultra-clean diesel become mandatory on the roads. That will mean our sulphur content in diesel fuel will drop from the current level of



500 parts per million to 15 parts per million. This has a direct correlation benefit to particulate matter but, more important, it's a technology enabler for our mandatory engines that will be introduced in 2007, which will contain technology that will virtually eliminate such emissions as particulate matter and NO<sub>x</sub> from truck engines.

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Our conclusions: Ontario should continue to explore and encourage the development of alternative fuels in the freight transportation sector. The trucking industry is doing it today. Our members and members in the United States are looking at alternatives to diesel. However, these are long-term benefits. In the short to medium term, the Ontario government, along with the federal government, should be looking at ways to encourage the introduction of cleaner fuels and cleaner engines in the trucking industry.

That said, here are our recommendations of how the Ontario government could go about helping the transportation industry become a greener factor in the environment:

First, recognize ultra-low-sulphur diesel as an alternative fuel and provide a tax incentive for its introduction. This diesel, as I previously mentioned, will become mandatory in 2006. In the UK, they gave a one-pence to three-pence tax credit on that fuel at the pump. With that, they saw that ultra-low-sulphur fuel achieve 100% market penetration six years ahead of planned schedule. Basically, if you make it cheaper the industry will flock to it, and the environmental benefits are considerable.

The second issue: encourage investment in newer regulated diesel engines. In California for the last three years they've provided tax incentives and tax grants to all freight transportation modes to get cleaner engines into their fleets. The California government has spent up to \$98 million in the last three years on these programs.

The Ontario Trucking Association is asking the government of Ontario and the federal government to work with us in terms of creating accelerated capital cost allowances, tax credits and a tax benefits system that will see cleaner and newer trucks introduced into the fleets at a quicker pace.

Third, review the Drive Clean program. OTA is a member of a seven-association coalition calling for review of the program. Ontario trucks are passing the program with ease, between 90% and 98% based on the model year of the vehicle. It's OTA's opinion that this government is currently using its resources inefficiently in that area and that it's best to redirect those resources toward a program that will immediately have more impact on air quality in Ontario. Recently, the National Academy of Sciences, which advises Congress in the United States on development, finished a report on I&M programs and it came to the conclusion that many proponents of programs like Drive Clean are inaccurate, that they are not as effective as their proponents claim.

Our fourth recommendation is to stop the tax break to dirty locomotive fuel. Currently, Ontario taxes road

diesel at 14.3 cents. They tax railway diesel at 4.5 cents. Since the province and other governments have said to the trucking industry that our diesel fuel taxes are not dedicated to roads, we don't see the correlation in the defence that our tax needs to be higher because we use the roads and the railways don't.

Trucking fuel contains 500 parts per million sulphur diesel, regulated. The railways have no regulations on their railway fuel. It can contain as much as 5,000 parts per million. The consequences of particulate are staggering on that fact. In the year 2000, the California Air Resources Board did a study of locomotive fuel at these kinds of levels and found that if the locomotive and railway industry was forced to use the diesel that trucks use, we'd reduce particulates by 38% for each locomotive.

Our last point, and again to emphasize this point, the trucking industry in Ontario is the only industry whose engines and fuel are regulated. The Ontario government has been silent on the issue of railway emissions and railway engines being unregulated. In the year 2000, the government of the United States began regulating railway engines for the first time. The EPA in the US has stated on record that this is the equivalent of removing 30 million trucks from the roads. OTA wants to make this point clear to the committee: our engine and our industry are clean; the railways are not. It's time the government started bringing some equity to policy forums on these matters.

Very briefly, I'll just walk you through the rest of our presentation in front of you of why diesel fuel and diesel engines are being used by the trucking industry. Four points: energy efficiency, packing efficiency, durability and reliability, and fuel safety. Basically, you get a lot more out of diesel fuel than you get out of other fuels in terms of being able to haul for the manufacturers.

Current emissions from truck and diesel engines and fuel: as you can see from the graphs, in the last 10 years it's been staggering on the truck diesel side. I guess this is one point I could leave with everyone: a diesel engine is not a diesel engine. A truck diesel engine is regulated; a diesel engine in a plane, in a boat, in a train is not. A diesel is not a diesel. Our fuel is cleaner; our engines are cleaner. So all the graphs you see here are diesel truck engines, not other engines.

I won't walk you through all the rest of them. I think the graphs speak loudly for themselves, that we are virtually eliminating our emissions.

On greenhouse gas emissions, again, our detractors in the railway industry like to claim that they are the saviours of Kyoto on this factor. Greenhouse gases are directly correlated to fuel efficiency. The more fuel efficiency we get, the lower our greenhouse gases will be. On that front, in the last 20 years we've doubled our fuel efficiency. In the next 10 years, the US government is going to be spending \$1 billion on a project called the 21st century truck project, again trying to double the fuel efficiency of trucks. In fact, last month NRCan issued a report on energy efficiency in the freight sector; it

covered the years 1990 to 1999. It stated that the for-hire trucking industry in Canada is the most energy-efficient mode of all the freight transportation modes. We saved 45.9 petajoules versus the railway industry, which came in at around 22 petajoules. What does that mean? It's the equivalent of the trucking industry taking 50,000 trucks off the road.

One of the other issues that you'll hear OTA say many times is that you're going to see more trucks on the road and we're going to get more of the market because of the way the market goes. Some would say, "Well, that's not a good thing for the environment. You may be cleaning up your engines, but how clean are they if there are more trucks out there?"

If you turn to page 7 of our report, what you see there is a red line signifying fuel consumption and fuel demand for the trucking industry. Basically, that red line is diesel consumed in Canada since 1990 and projections up to 2010. What the blue bars signify is that if the trucking industry alone consumed all that fuel, our emissions—and I'll bring your attention to the fourth chart; the fourth chart should have been hydrocarbons as opposed to COs. What it shows is that we will be consuming more fuel and there will be more trucks on the road. However, as you can see by the blue bars, our emissions virtually disappear. Trucks are good for the environment.

One of the other issues brought forward recently, and I'll close with this, is a study done for the three environment ministers—Anderson, Whitman in the US, and the Mexican environment minister—recently completed in 2000. It examined the proponents' claim in the railway sector that we should shift all the freight from trucks on to our rail cars and we're going to save the environment. Well, they did an analysis of this—again, this was for three governments; it had nothing to do with the trucking industry—and what it showed was that if you shifted all the freight from trucks on to rail in the Toronto-to-Detroit corridor between 2000 and 2020, you would have a 100% increase in emissions. It's directly related to the railway's use of dirty engines and dirty fuel and the trucking industry's corporate responsibility of taking on the additional cost of cleaner fuels and cleaner engines.

**The Chair:** Thank you very much, with that emphatic windup. We appreciate that. We have, starting with the government, about a minute and a half per caucus.

**Mr Ouellette:** Thank you for your presentation. Oh, Mr Hastings, did you have a question? Go ahead.

**Mr Hastings:** Mr Laskowski, specifically, what kind of pilot projects could we get started in terms of tax treatment and real comparators between low-sulphur diesel and biodiesel, if they could be linked in terms of engine efficiency?

**Mr Laskowski:** Those projects are currently going on. The problems with biodiesels so far are that, one, they have the increased NO<sub>x</sub> emissions. The second issue is that because biodiesel is basically a compound of animal fat, there are issues with regard to the warranty. Biodiesel may have a place in this market; however, it's creating all

kinds of problems in the US market. They're being labelled as boutique fuels and are creating problems.

The issue of low-sulphur diesel fuel I think is a matter of simplicity. The petrol refineries, in particular Irving, are ready to go to market with it and are telling the trucking industry we're looking at a one-cent to six-cent increase in distribution costs. Well, the current cost of diesel fuel—right now we're at about 34 cents at the rack price—that's before taxes—on diesel. Provincial tax is 14.3 cents, which represents about 40% of the cost.

I think the pilot is simple: reduce your share of the diesel tax and you'll see this fuel being introduced into the market at a comparable or reduced rate, and the trucking industry will flock to it. Our number two cost is fuel, next to operating costs. It's a smart business decision and it's a smart environmental decision on the part of the government.

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**Mr Bradley:** I was interested in your comment about Drive Clean, what you found unacceptable about Drive Clean. You had some figures from the United States that it's not as effective as the claims that are made. What specifically are your concerns about Drive Clean?

**Mr Laskowski:** The Ontario Trucking Association supports the on-road program of Drive Clean. Make it a matter of record: if you are smoking down the road, you should be pulled over and fined and forced to clean up your engine. It doesn't make good business sense and it doesn't make good environmental sense.

What doesn't make sense about the Drive Clean program is its annual component. Two things: one, it forces trucks through the program annually, as opposed to cars bi-annually. Our pass rate is between, as I've said, 90% and 98% depending on the model year. Why force 90% to 98% of the clean industry to catch 2% of the population when your on-road program could? There is no other program in the United States, other than Massachusetts, that tie to registration. California, which is always hailed as the leader, does not have an annual program because they are cost-ineffective. Sure, you're going to clean up that 2%, but from a policy perspective and a taxation perspective, does it make sense to force a for-hire industry with its fleet distribution around North America to come in for a test that it knows it's going to pass?

**Ms Churley:** Thank you very much for your presentation. What I'm going to say I say with all due respect. Your comment, "Trucks are good for the environment"—I understand, I think, where you're coming from, but taken out of context I would submit that you might want to say that differently. Because I think this committee, overall, agree that, no matter how clean they are, fossil fuels going up into our atmosphere are not good for the environment. I think what you are trying to say is in comparison to some of the other fuels and the other examples you gave. Can you clarify that?

**Mr Laskowski:** I guess unless you've decided that we're moving to the days of Star Trek and we're going to



transport our goods and foods from one place to another—we need transportation.

**Ms Churley:** Nobody's disputing that.

**Mr Laskowski:** So if we are going to need transportation, we need to choose the most efficient and the most environmentally friendly mode. I will stand on that record. Our engines are the cleanest, versus rail, versus marine and versus air. So until there is a mode of transportation other than those four that I've just mentioned, trucking is good for the environment as it relates to the transportation of goods. We will stand on that commitment.

Until someone can come up—and it's not the trucking industry that's putting this forward; all this is from the United States Environmental Protection Agency, it is from the California Air Resources Board, it's from the NAFTA Commission, all the federal government. I don't see your point, unless you have an alternative to those four other modes. If there is another mode of transport that is cleaner than the trucking industry to move goods, then so be it. But today it's trucks. That may be hard for people to swallow, but the facts are the facts, and we stand by the facts.

**The Chair:** Thank you very much for coming forward in your presentation. The time has run out. We appreciate your input.

**Mr Ouellette:** I need a question to research. Can we receive the current or approximate costs of diesel fuel in the European countries, as well as the taxation rates for those fuels as well, please?

**The Chair:** No problem.

## COMMITTEE BUSINESS

**The Chair:** Committee, we have a motion on the floor from a few days ago by Mr Gilchrist. Maybe we should address it and a couple others at this point in time.

**Mr Gilchrist:** I'm prepared to stand that down for the purpose of discussing the subcommittee report.

**The Chair:** Would somebody like to move the subcommittee report?

**Mr Gilchrist:** I'd be happy to do that.

**The Chair:** Discussion on the subcommittee report?

**Mr Gilchrist:** I have to read it into the record.

Your subcommittee on committee business met on Wednesday, August 29, 2001, and recommends the following:

(1) That legislative research prepares a summary of submissions/testimony for the committee by September 21, 2001.

(2) That legislative research in consultation with the Chair, clerk and members of the committee create by September 21, 2001: (a) an A list (within Ontario) of sites, experts, conferences, technologies, research facilities, and universities worth a visit by the committee; (b) a B list (North America, Europe)" etc—I'm adding the etc.

(3) That the committee members express to the Chair and clerk of the committee by September 30, 2001, their preferences for topics of interest and site visits.

(4) That the Chair has the authority in consultation with the clerk to approve site visits.

(5) That once the House resumes in the fall, the committee meet on Wednesday mornings from 9:30 am to 12 pm if necessary, or at the call of the Chair.

(6) That legislative research provides the committee with a draft interim report by November 15, 2001, and the final interim report by November 30, 2001.

(7) That February 15, 2002, be the deadline for the completion of research and site visits by the committee.

I move its adoption.

**The Chair:** Thank you very much. Discussion?

**Ms Churley:** Sitting on the subcommittee, I was part of the recommendations here, but I just wanted to make a friendly amendment, I believe, which is something I suggested at the subcommittee meeting. That is that all approved site travel be tabled with the committee. That's after you approve it—I assume that's a friendly amendment—so that we know where people are going, when and where, so we can keep track of that.

**Mr Gilchrist:** If you're suggesting, after the fact, a summary, then I would consider it a friendly amendment. The Chair has been given the authority under this to make the decision. It's not everybody get together and decide whether going to a specific site is appropriate.

**Ms Churley:** I thought I was clear that—

**Mr Gilchrist:** No, you weren't. That's why I'm asking the question. You're saying that after the fact, in the normal course of business, the committee would from time to time continue to update members as to the budgetary expenditures in all categories?

**Ms Churley:** Yes.

**Mr Gilchrist:** Excellent. I have no problem with that being added to my motion.

**The Chair:** Clear? Thank you. Further discussion?

**Mr Ouellette:** Two quick things to point to.

*Interjection.*

**Mr Ouellette:** No, actually, there are two amendments.

On point (1) the summary of submissions done by September 21: can we have that summary done by sectors as well so that the wind power is summarized all together—

**The Chair:** That's how it will be grouped, yes.

**Mr Ouellette:** And then to point (5). I move from 9:30 to 10.

**Mr Gilchrist:** Starting time?

**Mr Ouellette:** Yes.

**The Chair:** Are you trying for a friendly amendment on that, or do you want to put—

**Mr Gilchrist:** I'll accept that as a friendly amendment.

**The Chair:** Other people like that?

*Interjection.*

**The Chair:** No, starting at 10, not ending, but I like your idea. So from 10 to 12 rather than 9:30 to 12.

Any further discussion? So two friendly amendments. You're clear? Those in favour?

**Clerk of the Committee (Ms Tonia Grannum):** Of the amendments?

**The Chair:** No, they're friendly amendments, so—

**Clerk of the Committee:** There's really no such thing as a friendly amendment. An amendment is an amendment.

**Mr Gilchrist:** Would you like me to reread the whole motion?

**Clerk of the Committee:** Or you could just amend—there was one amendment to number (4), maybe, and number (5).

*Interjections.*

**Mr O'Toole:** I'd like to hear Ms Churley's amendment read into the record.

**Mr Gilchrist:** I restated it.

**Mr O'Toole:** I want to hear what she said.

**Ms Churley:** I simply said, and Steve restated it so that it was more thorough, that I would like the amendment to read that the approved site travel be tabled with the committee. You had clarified that a little further, Steve. What was your wording?

**Mr Gilchrist:** Might I suggest that you want to be more encompassing than that, because I think we want to see the expenditures in every category, that from time to time the Chair and the clerk shall table a summary of all expenditures by category.

**Ms Churley:** That's perfect. That's my amendment.

**Mr Gilchrist:** So moved.

**The Chair:** Ms Churley's amendment, as stated by Mr Gilchrist—

**Mr Gilchrist:** Mr Gilchrist's amendment, thank you.

**The Chair:** All clear? Discussion?

Those in favour of the amendment? Those opposed? The amendment is carried.

I believe there is a second amendment.

**Clerk of the Committee:** Well, we could just do it; that's fine. I could just change it to 10 o'clock.

**The Chair:** That's allowed?

**Clerk of the Committee:** OK.

**The Chair:** So we've changed item (5) from 9:30 to 10, and I'm told we're not required to vote on that as an amendment.

**Clerk of the Committee:** So now we're just to vote on the subcommittee report, as amended.

**The Chair:** On the subcommittee report, as amended: those in favour? Those opposed?

The subcommittee report, as amended, is carried.

**Mr Gilchrist:** I'll be pleased to withdraw the motion I tabled on Monday.

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**The Chair:** I thought you had.

**Mr Gilchrist:** No, I said pending the acceptance of this.

**The Chair:** We have a motion circulated from Ms Churley.

**Mr Bradley:** Mr Chairman, if I could tail on just a little bit on the last one, and it's because you can't have one member dictate what happens with the committee. I am the Chair of the government agencies committee,

which meets Wednesdays at 10 am. Because of the numbers we have here I don't want to say—but that may be the most practical for everybody else. If it is, it is, and I can find a substitute from one to the other, depending on the circumstances. It's just a dilemma we face as members.

**The Chair:** It was one picked by the subcommittee that they thought was in order.

**Mr Bradley:** I understand, and that's why I'm saying I just want to note that if you don't see me sitting here at that time, it's not that I'm going to be evading the committee; it's going to be that I may be chairing another committee and coming in late or coming in early or whatever.

**The Chair:** It's possible that we could look to House leaders who are scheduling committees. Maybe there's a possibility of finding another time slot that this committee could sit that wouldn't conflict.

**Mr Bradley:** Sure. The only point I want to make in defence of the motion is that no matter what you are going to pick, you are likely going to find members of this committee who are members of other committees, and I simply wanted to note that, rather than say, "I don't want the committee sitting Wednesday mornings."

**Mr Hastings:** How frequently do you sit on Wednesday?

**Mr Bradley:** Almost weekly.

**The Chair:** We have a motion that was circulated by Ms Churley yesterday, I believe. Do you want to bring that forward now?

**Ms Churley:** Yes. I'll read it into the record and then I'll explain why I'm moving it.

Whereas there are many new proven green alternatives to old polluting energy production, and

Whereas waste incineration and nuclear power are old technologies with significant negative environmental impacts and risks and high costs,

"Therefore I move that both waste incineration and nuclear waste, which have been suggested as alternatives for this committee to examine, be excluded from this list for the purposes of research by the select committee on alternative fuel sources.

I make this motion because there was a semi-motion, although it was put forward as a recommendation by Mr Gilchrist. In his recommendation, if I may explain why I'm doing this, Mr Chair—I don't believe he has ever moved it as a motion.

**Mr Gilchrist:** Yes, I did.

**Ms Churley:** Did you? But that's the one you just withdrew? OK.

**Mr Gilchrist:** There's already something that's not relevant.

**Ms Churley:** No, this is still relevant. If you will just hold your tongue for a second and listen; this is important.

In the list of recommendations you were making, the motion you withdrew, you mentioned that we would divide up the categories of alternatives as interest dictates. You took it upon yourself—and I appreciate the



fact that you did this work—to describe what some of those might be. You mentioned “wind, solar, biofuels (biomass, biodiesel, ethanol), landfill gas, waste incineration, waste oil, geothermal (deep mine, deep water, heat pumps), hydroelectric, nuclear, hydrocarbons (shifts within range of petroleum products, use of additives), hydrogen/fuel cells, plus conservation strategies and financial impacts,” and space for more.

I realize that motion has been withdrawn, but it does leave us in a particular, I would say peculiar, situation where we haven't defined, as this committee, what alternatives we will be looking at. We've been asked, and I think we all agreed as a result of the motion by the subcommittee we just passed, that each of us would determine which alternatives we want to look at. I've already suggested I'm very interested in energy conservation efficiency and financial incentives and instruments. Others have mentioned some other interests.

My concern is that we have no boundaries here. I would personally agree with all of those on here except for the two that I mentioned. Let me explain. First of all, I believe we need to define, and the fact that this motion has been withdrawn means that we don't have a list or any common agreement on what it is we'll be looking at. But I particularly want to make sure that these two are not included on any list that we should compile as people express their interest.

Let me tell you why. Nuclear power, as we know, has been around for quite a long time now and produces massive amounts of radioactive material. It's material that nobody, no government, to this day knows how to store safely. It's continuing to build up and it's been suggested it would cost billions to store it. It's old technology with substantial problems associated with it. It's also massively subsidized by the taxpayer to this day even though it's been privatized now.

Waste incineration—in the interests of time I'll try to speed this up. As people know, I have a long history in it and it's been around for a long time, particularly in Europe, where they have a problem with land mass for landfill. But it's falling out of favour in Europe now. It's seen more and more as an old technology. Even though we hear, “With the latest technology, the latest pollution abatement equipment,” it still produces some pollution that goes up the stack. The other reality is that the better the pollution abatement equipment is all that stuff, the more hazardous is the fly ash that's produced which has to be dealt with, which has massive environmental implications.

The other problem with it is that—and I'll sum up here, Mr Chair, so we can go and have lunch—we need to be looking at more green ways to deal with our garbage as well. We need incentives to do that. Having trouble landfilling garbage gives us that incentive to move on to composting and other green ways of dealing with it, and that takes away from that incentive.

Having said those things, I think it is really foolish for a committee that's supposed to be looking into the latest green technology, so we can start the process of getting

us out of this mess we're in in terms of saving the planet and people's lives, to be looking at those old technologies when we know they're outdated. We should be looking forward and not wasting our time on those particular outdated methods that we have the information about.

I hope I can get the support of the committee so that we can spend our time in a useful way looking at the new technologies, the green technologies, which in my view is the purpose of this committee.

**Mr Gilchrist:** Marilyn, without disagreeing for one second with anything you've talked about, the known old technology on which you're basing your decisions, it would be hypocritical of us in the least, when you look back to the words we all used on the first day this committee met, to suggest that we not have our eyes and ears open to anybody who wants to come into this committee and talk to us.

If you're presuming now to know the answers, I would invite you to write the interim report today. But, Marilyn, I'm going to tell you that you've left out, for example, the ITER project, nuclear fusion, not nuclear fission. You've left out the fact that for remote lumber mills the opportunity to combust their own sawdust in some form is their preferred choice, looking forward into the future.

I have no idea what technology is out there around the world or what might be under development that someone could come and talk to us about. We've had lots of presentations already from people, including some this morning, who want to talk about making diesel fuel better or gasoline better. You have not dismissed them, even though the root cause for this committee's existence is the pollution being put out primarily by gasoline and diesel. So if we're prepared to listen to people talk about how you make gasoline better, I truly don't understand, at this stage of the committee's work, why you would presume to ban somebody who wants to come in and talk about how nuclear might be made better or incineration might be made better.

I don't want to leave you with the slightest impression right now that I would be championing either of those things as the way to evolve from our status quo energy creation. But to suggest that we not listen to people sends out exactly the wrong message and a totally contrary message to what you and the Liberals and we said on the opening day, that we were prepared to listen everybody on every technology and then we will make a decision as to which technologies we recommend. I have every expectation that after we've heard everything, you will be a very strong opponent to the status quo in those two areas. But to suggest that we not listen to people at this stage is just totally contrary to what I thought this committee was all about.

**The Chair:** Mr Bradley or Mr Parsons. I think your hands went up simultaneously.

1210

**Mr Bradley:** I would make this comment. I understand both arguments that are made. I look at this, the alternative fuels committee, as looking at something that

is new and different as opposed to those which exist today, although I think Mr Gilchrist does make a point that there are modifications of certain fuels that can make a difference.

I personally did not contemplate nuclear waste—and I'm talking about the waste itself—as being one of the fuels we would be looking at as an alternative fuel, nor did I contemplate we would be into garbage incineration. It may well be that someone else somewhere else in this government or in this Legislature may look at those issues in a different context. It's my opinion—and I realize each of us probably has a slightly different opinion on these—that we should be excluding the two Ms Churley has made mention of, because I really do not look at those as fitting the alternative fuels committee mandate.

I'm not denouncing what anybody else is saying. I understand some of the other arguments that are being made on the other side of this issue, and there are many initiatives being brought forward to us that I'm a bit sceptical about to start with. But I do believe that both nuclear waste and garbage incineration should not be within the mandate of this particular committee.

**Mr Parsons:** Just to show we didn't get together on this, I also appreciate that there are downsides to nuclear and the burning of garbage, but I would question the use of the phrase "old technology." Computers are old technology, but they're going to continue to grow and expand. As an engineer, I believe I have to study the issue before I take it off the table. I know there are problems with burning garbage, but I also know there are problems with burying garbage in the ground. In burning garbage, at least I have some sense of what's happening. When I bury it below the ground, it shows up for my children or grandchildren. Yes, we have to address that issue, and we're not working in isolation. I personally would favour studying the issue. Maybe ultimately I will vote against it as an alternative, but I'd like the opportunity to study it.

**Mr O'Toole:** I think we are all reasonably informed in those areas. Certainly I don't disagree with the statement Ms Churley made with respect to the management of nuclear waste. Some of the new technologies are in fact planning on incinerating that waste. I have two nuclear plants in my area. The ITER project is proposed—the Canadian site is in my riding—and it uses nuclear waste or by-products of the nuclear reaction process.

So I certainly won't agree to having it removed as I become educated about the alternatives; I certainly am open at this point in time. The other part is, I agree completely with Mr Parsons. I sat on the interim waste authority as a regional councillor and listened to all that stuff for years. Old technology is dumps. That's old technology. No one knows the leachate and the compounds that change over time. The only difference between fly ash and residual waste in dump sites is that one is in liquid form and the other is in ash form. All the decomposition that occurs over time is contaminated waste generally. I had their applications in my riding and

probably most of the ridings across this—Mr Parsons and I are both on the cement caucus to incinerate some forms of waste. Those applications would replace what we would call fuels today. I understand the statements part of it—

*Interruption.*

**Mr O'Toole:** —that you are trying to make, but I think it would be immature and irresponsible not to listen to the whole debate and the full input. Part of the other voice you hear is my more angry side. But I appreciate the point.

**The Chair:** I draw to your attention that it's 12:15. We will start at 1 o'clock, because we have three video conferences. I would remind you that you're eating into your lunch hour—no pun intended.

**Ms Churley:** Yes, and I haven't had breakfast. It's fairly clear that I'm not going to win this motion. I appreciate the comments that people made. Just very quickly: old technology, Mr O'Toole, is dumps and incineration.

First of all, to Mr Gilchrist, the motion reads very clearly that this committee should not be spending time researching these two particular alternatives. If you look through, we've had many presentations, we've got many, many more today and this evening, and, interestingly enough, I don't see one for either nuclear or energy from waste.

**Mr Gilchrist:** What's your problem?

**Ms Churley:** Just hold your horses, Mr Gilchrist. Don't panic; it's OK. None of them has come forward to give a deputation. If they wanted to, I don't see a particular problem with that. I am very specifically trying to remove those two, though, for the purposes of our research. So far nobody's even come to talk to us about those, which I think is telling in itself. We've been presented with so many newer, exciting technologies, and I think it would be a shame and a blight on this committee and to many out there who are looking forward to having this committee look at the new green technologies.

I really think it would be a shame for us to have people running around looking at nuclear plants and garbage incinerators when we have all these other exciting technologies to look into and recommend. It would be a giant step backward. There are people out there who are nervous that there is a hidden agenda with this government—I'm just expressing what people are saying to me—and that more nuclear is part of that. I think it would send out a very positive message if we made it clear that we're looking at newer, greener technologies to recommend that this government move forward on.

**Mr Ouellette:** Mr Chair, in regard to the comments on the motion put forward, yesterday I asked a question of Ethxx, and the response that came back to me was, "Is there carbon in it?" When I was asking the question, it was about yard waste, leaf waste and other areas. To me, that process was completely enclosed incineration of some form or transformation of the carbon molecules found within that to create ethanol. I looked at that as a



possibility for utilizing garbage or waste that would go to the sites. I think those individuals who want to look into those various areas, whether it's incineration or nuclear, should have the opportunity and we shouldn't limit those people who want to review that.

**Mr Hastings:** My point on this is that I at least come to this committee with an open mind, and I think we should be looking at all the possibilities. That doesn't necessarily mean right away—somebody might want to conclude I'm an advocate of incineration, but I think you've got to look at what's happening in these fields. If you look at the garbage dump situation, there are companies now working on using the application of enzymes. Is that a way of reducing our garbage dumps? We've got to look at everything. It doesn't mean we advocate those. As far as I'm concerned, if somebody wants to infer there's a hidden agenda, I guess it's a free world and they can do so. It doesn't necessarily mean that there is.

In my estimation, you look at all the possibilities and then, as Ernie says, you come up with your best conclusions after the research, your own thinking, and we come to a consensus, hopefully on everything, but it will not necessarily be on everything. But we look at it, and then we move on.

**The Chair:** Dr Bountrogianni, you're the only one who hasn't spoken. Further discussion?

**Ms Churley:** Could we have a recorded vote?

**Ayes**

Bradley, Churley.

**Nays**

Bountrogianni, Gilchrist, Hastings, O'Toole, Ouellette, Parsons.

**The Chair:** I declare the motion defeated.

Just for your benefit, after lunch you'll find in front of you a list of suggested additional invited guests that our researcher has put together—some of his thoughts, some of the people who have presented, something we might be thinking about for our Wednesday mornings when the House resumes and possibly look at suggestions you people may have as well, as we work into the fall term. We're looking forward to your suggestions. If you like this list, let us know. Maybe we'll address that at the supper hour or later this evening.

We're now recessed until 1 o'clock. Please be here at five to 1 so we can start at 1 o'clock, because it's a videoconference.

*The committee recessed from 1220 to 1303.*

#### VISION QUEST WIND ELECTRIC INC

**The Chair:** Our first presenter this afternoon, by videoconference, is Jason Edworthy, Vision Quest Wind Electric Inc. I'm having just a little trouble, Mr

Edworthy, with getting some of my committee members here on time. My apologies to you for starting a bit late. We've set aside a 20-minute block, so we'll give you the full 20 minutes, no question. The way the committee operates is that after your presentation, whatever is left over of that 20-minute period we'll split between the three caucuses for possible questions. Please state your name and begin, as you feel comfortable.

**Mr Jason Edworthy:** My name is Jason Edworthy. I'm executive director in charge of communications for Vision Quest Wind Electric. Vision Quest is one of Canada's largest private wind energy firms. We've been operating in a competitive, deregulated market since 1996, and we own and operate a little over one third of Canada's installed wind energy capacity. We're finishing installation of 60 large wind turbines approaching 41 megawatts of installed capacity.

I've been in the wind energy business for a little over 20 years. I've been a past president of the Canadian Wind Energy Association. I was involved with one of the first wind farms. The track record we've got includes the kind of activity our principals have had since 1980, also being involved in very early good connected wind turbines; the first wind farm up in Cambridge Bay in the Northwest Territories, now Nunavut; and also the large Cowley Ridge wind plant in Alberta that was put up in the early 1990s.

Since 1996 we have had a deregulated market, which gives us a lot of experience in being involved in selling wind energy and owning and operating the equipment.

I wanted to tell you briefly what we're doing in Ontario. We are a licensed retailer in Ontario and we have an application in for generation. We have a number of wind energy sites that we're planning to develop and that we are currently working on, including a planning application in Prince Edward county, which I understand is probably dear to the heart of Mr Parsons. We plan to supply wind energy in the market at or near to market opening next year.

What I want to tell you about are the benefits of a thriving wind energy industry in Ontario and some recommendations we've got to get there, and then I'd like to be available for as much question time as possible.

One of the things I like to say when I come to Ontario and talk about the benefits—in fact, anywhere I go—is that what we'd like to do is come there, hire a lot of people, invest millions of dollars and pay taxes. We find that's a pretty good message.

One of the things that is another very important benefit to Ontario is the health benefits of wind energy, particularly with the smog considerations along the Windsor-Toronto corridor. Replacing fossil fuels with wind energy production in the province has got to be a very important consideration.

The first recommendation I've got to pass on to the committee today is that the provincial government should make a strong statement supporting the development of wind energy in the province and outlining its benefits: no emissions, low on-site impacts for power plants and the high degree of rural investment.

What we're doing this year in southwest Alberta is resulting in about 14 to 20 jobs locally, about \$3 million locally and a number of permanent jobs resulting from that. We're talking about the benefits of wind energy, which are very quick construction times and a unique relationship with rural farmland. We're putting wind turbines on farms, providing a second cash crop for farmers and in essence preserving farmland.

It would go a long way toward removing a number of incorrect public perceptions about wind energy to do this. I would suggest that if the government is quiet or neutral on the issue of wind energy, it might imply to the public that the government is not in support of wind energy or that it's a low priority.

Our second recommendation is that it would be helpful to prepare an objective information package for consumers as well as the general public about wind energy. This would also be of use to municipal governments that may be considering developments in their area. This could cover everything from, what are the considerations around wind energy, what are the impacts of it, to what are the kinds of issues that are required for planning purposes such as sound, public safety and environmental considerations?

I know that the Canadian Wind Energy Association would be pleased to participate in that, and I would suggest that having a nationally recognized environmental organization would also provide some assistance and support. Again, without that kind of support, it would undermine, and is currently undermining, the ability for developers such as ourselves to attain municipal permits, and that's really due to a lack of awareness and experience with the technology.

A very important, very easy and very sound recommendation I'd like to provide to the committee is that the province should provide access to transmission and subtransmission grid information to help developers in identifying potential wind energy sites. What I mean by this is that the information about transmission lines and lower voltage lines is currently in the hands of Hydro One and is not publicly available. As we understand it, Hydro One does not have competition because they're the sole owner of the high voltage transmission lines, and this lack of access to the information is creating a significant barrier to the industry by not making transmission information easily accessible. Again I would suggest this is a very easy recommendation to implement and it's very important for our industry.

1310

We'd like to suggest that the provincial government consider implementing a renewable portfolio standard, where retailers of electricity are required to source a portion of their wholesale power from clean energy sources such as wind. While we're not in favour of direct subsidies or special support for the wind energy industry, we do favour these where they put us on a level playing field or in harmonization with our trading partners.

The United States has a production tax credit for wind energy that is federally implemented and many states

have renewable portfolio standards that provide this kind of leg up. It's certainly drawing Canadians to the wind energy industry in the United States and it could, if we ever have the same opportunities here, result in our buying the required wind energy that we'll need in the future from US sources. We believe that a renewable portfolio standard could be ramped up to provide 10% green power by 2010, and this would put us in line with many of the US states directly across the border and with such states as Texas, for example, and would mitigate the opportunities we don't have because we don't have a similar production tax credit that the US has.

Another very important one that is provincial is that the threshold requirements for environmental assessment for wind in Ontario are currently exactly the same as coal. It's much easier to do environmental assessments for burning toxic waste, for example, in municipal generation facilities, up to 25 megawatts, whereas the threshold for wind is only two megawatts. Wind is the most benign energy source that we have in Canada, and we do not understand why we would have such a high threshold of requirement for environmental assessment. In Alberta there is no requirement until we get over 100 megawatts for wind.

We'd like to applaud the provincial government for moving forward on deregulation and we want to encourage that that continue, but it is important to ensure that the rules of deregulation as they come into place do not inadvertently penalize or discriminate against environmentally friendly energy sources such as wind. What that means is that it's important to consider and keep in touch with the industry as these rules come into fruition and as we gain experience in them.

The government should also ensure that all provincial permitting processes for wind energy are efficient and not overly cumbersome. One of the big advantages of wind is that we can put small increments on very cost-effectively at very quick speed. So it's very important that red tape that might increase transaction costs for an environmentally beneficial industry with already slim margins is not increased. In fact, it should be looked for and removed. I would suggest that the province could work with municipalities to do the same thing.

The wind industry in Ontario needs the support of the provincial government in order to bring significant environmental and economic benefits to the province. This will not be in the form of handouts or subsidies but rather removing the red tape and barriers, creating a level playing field with the existing incumbent industries.

Most important, we know that Canadians and the citizens of Ontario want clean energy, and in particular they want wind. An Ontario Hydro study in 1995 found that nearly 70% of Ontarians want to be able to purchase green power, and subsequent federal studies have confirmed this.

We in Vision Quest look forward to working with you to create a thriving wind energy industry in Ontario and expanding in Canada. That's the conclusion of my remarks.



**The Chair:** Thank you very much, Mr Edworthy, for a most interesting presentation. We have heard from some others on wind energy and it's certainly tweaking the interest of this committee. We have about two minutes per caucus for questions and we'll start with the official opposition.

**Mr Parsons:** I appreciated that presentation. I have a sense from people I've talked to in Alberta, where you have windmills, that it's not a problem. The community doesn't seem to perceive them to be unsightly or noisy or anything like that. But I get some sense in Ontario that because they're new, there is still some misunderstanding. I'm wondering what you think can be done to better educate people in Ontario, not just to your firm but to the windmills.

**Mr Edworthy:** Absolutely. I fully understand that. I think the main concern is the unknown and a bit of a fear of the unknown, or at least concern about it. Certainly we have had, through a small program that did support wind energy, or at least encouraged it and allowed it to come on from the mid-1980s forward, experience, and we're most active in the municipality of Pincher Creek. They have actually gone out proactively looking for our industry and that's been a big help to us. We don't have that decade of background in Ontario and certainly not in Prince Edward County, for example. So I think that what we need to do is encourage a start, go in slowly and get some experience with it.

One of the things that we're doing is looking at opportunities for key members of communities to visit wind farms and wind facilities to see what they're really like. It's fairly easy to travel to Buffalo, New York, and see some existing ones, and certainly we have extended an invitation to this committee to visit our facilities in Alberta. We'd be very glad to do that. Once you see them, you can believe in them. Everyone I've ever taken up to the wind farm and to our wind turbines has always said, "I thought they were noisy. They're not." They talk to the community members and they find out that the young people have jobs, they get to stay in the rural area. You talk to the farm owners and they say, "This is fantastic. We've got a drought this year but we're still in business because we have these wind turbines on the land."

**Ms Churley:** Thank you very much for your presentation. We've had a number of people come in, talking about wind power and I can tell you that we're getting educated here, which is a good thing, because we know that we're behind some of the European countries here in Ontario and, indeed, Canada.

I'm the NDP environment critic here. One of the concerns that I received from some citizens where a turbine was to be built was a concern about birds. I know that lots of birds are killed in the city around the tall buildings, running into the windows in tall buildings, but I wonder if you could comment on that and if that's been a problem.

**Mr Edworthy:** This all stems from some very early—in the 1980s—facilities that were situated in unfortunate

locations. The industry has learned and it's been at least 15 years since those incidents. One of the things we always do as a company, and I believe all of our industry does now, is have environmental screening early on, whether it's required or not, because as an environmental industry, we don't want to be in the wrong spot. We want to be in the right place.

We've now grown large enough that we can afford to have biologists who come on and study our sites. We're just concluding a spring migration study at our site and we have a full set of weekly examinations of our site. It's not a great title: It's "Looking for Carcasses." Do we have any problems? In fact, because there is the chance for predators to scavenge and take them off, they even put chicken carcasses out and monitor whether they disappear or not. So it's a full scientific study. The results to date are, across Canada where wind farms have been monitored, we know of three bird fatalities which have turned into 300 and 400 operating turbine years, which is very insignificant. None of them has been hit by blades. Two birds we are aware of have hit towers and one took shelter in a mechanism where the machine turns to face the wind and got caught in the oil.

In a recent migration study we have found no interaction with any raptors. We have found that a few mourning doves apparently have hit towers and that's now where we have a lot of machines. But we're still talking about less than five birds with a lot of machines, so they're not significant population impacts. We're still very concerned about it and we're very careful to site to avoid these. The most important thing that we've been told by our biologists is that this is not a significant problem when you site them carefully.

**Ms Churley:** I'd be interested in that study. Thank you very much.

1320

**Mr Hastings:** A very intriguing presentation. Two issues: how did the Alberta government and the Alberta Ministry of Learning handle any new job training that you guys proposed, or what adjustments have to be made to the labour market for this industry in terms of specific skills? And secondly, access to capital: I understand Martin's budget of 2000 had a Canadian renewables and exploration expense, which is a flow-through share arrangement, as does Ontario for mineral development. Why are these things not being taken advantage of, especially the Martin thing, nationally, similarly as if you have a carbon-based flow-through share arrangement?

**Mr Edworthy:** Thank you for the question. First of all, in learning, I'd like to think that we had enough impact on the labour market to date that that was a concern and we've been on the radar screen. Unfortunately, we aren't that big. But there's a lot of interest. We've had the old college, which does training on oil land men. They have altered their course to look at wind energy land people now. In fact, we've done all our own in-house training. We've sent people to Denmark, we've sent people to California to do the training. We've received no subsidies or support for that at this date. It may just

simply be my Alberta background, but it didn't even occur to us to ask. We've just considered that a cost of doing business. We now have had such incredible support from our manufacturer out of Denmark that they have established a service facility right near us and that's providing some training as well.

I would suggest that the same kind of high-level technicians that we need in the modern automobile industry, in the modern aircraft industry, are the same kind of people we need right now for installation and maintenance. As we grow bigger and increase the market, we will, however, have manufacturing opportunities. We have started manufacturing of towers here in Alberta and there's certainly been a lot of learning going on there. It's taken two years. I'm not aware of their accessing any support for that either. But I think if we're going to really take advantage of this opportunity and plug into the worldwide boom, that's an approach we need to look at, and certainly we'd be glad to provide some advice, along with our manufacturers, to do that.

Regarding the SURCE, as we call it, the support and flow-through, I have to admit that we were intimately involved in working with the federal Department of Finance on that. We install what we call exploratory turbines on new pieces of wind land. We find this extremely important for us to determine, from very small anemometer cups to very large rotor sizes, if we indeed have the resource we think we've got. That kind of real-life production and revenue is extremely important in raising capital, so we have taken advantage of that. It's been very useful. For example, with the Castle River Wind Farm, the picture of which is behind me, we will have 60 wind turbines there this year. It covers about four square miles of land and we had two different exploratory turbines quite a way apart from each other to help us decide that this is where we wanted to do the investment.

The most important factor in raising capital is having a good market which is treating us fairly and allows us to have good, solid contracts that we can bring to the bank and that we can bring to investors. With a good power purchase or energy purchase agreement in a market that treats us fairly, we can bring in all the capital we need, whether it's from Bay Street or Calgary or from overseas.

**The Chair:** We've run out of time. We really appreciate your presentation and response to the questions. We may be back asking you for more input in the future, but time is up now. Thank you ever so kindly for joining with us.

**Mr Edworthy:** I appreciate the opportunity very much. Thank you.

**The Chair:** It's my understanding, committee, it takes a couple of minutes to switch to the next video conference, if you wanted to get a drink of water or something.

While we're waiting, does anybody have any comments on this list that research has circulated as people we'd like to invite to have chats with?

**Mr Hastings:** I have a few more.

**The Chair:** Feed it to research.

**Mr Gilchrist:** Just while we're waiting, Chair, the list that Jerry has sent out—forgive me if I missed the discussion on that—

**The Chair:** No, I just started it. Really, what we're looking for, if you're in favour—

**Mr Gilchrist:** I was just going to suggest that perhaps as the first step a letter be sent to everyone soliciting information, as Jerry has outlined it there, and then, depending on their responses, we'll plug them into meetings at some point in the future.

**The Chair:** To the technical people, we're ready to go any time. We're just casually chatting here in the meantime.

## ECONOWOOD HEATING LTD

Our next presenter is Econowood Heating Ltd, and it's by videoconference. It's Henry Rasmussen, owner, if I'm pronouncing that correctly. You have a total of 20 minutes, sir. What's left over from your presentation will be divided for questions among the three caucuses. You may begin now. Please state your name as you start, and the time's all yours.

**Mr Henry Rasmussen:** My name is Henry Rasmussen. I'm going to talk about wood as a viable alternative heat. Do you hear me now?

**The Chair:** Loud and clear.

**Mr Rasmussen:** Great. As already stated, my name is Henry Rasmussen. I live and work in Kenora, Ontario. I'll just launch into my tirade here. It won't take a full 20 minutes, and it's speaking about what I learned as a manufacturer and distributor of wood-burning appliances.

Here in northwestern Ontario we frequently experience heating seasons that extend from mid-September until the end of April. During the months of November, December, January and February temperatures of minus 30 degrees Celsius are not uncommon. These long winter months put a severe strain on most heating systems as well as on our pocketbooks.

From 1978 until the late 1980s I manufactured and sold my own line of wood-burning space heaters for which I hold the North American patent rights. From the outset, my motivation was to develop and provide a safe and environmentally friendly wood-burning appliance, one that, while simple to use, would be clean-burning. I was fully aware that a clean-burning unit had to burn off all or most of the gases during the burning process and consequently not allow creosote, the bane of space heaters, to form. This I achieved to some degree.

During this period, I paid particular attention to installation and heat distribution methods. I learned that the most efficient installation was one where the unit was positioned near the centre of the home to be heated, where the chimney ran through the inside of the house and never on the outside of the building. In basement installations a simple plenum worked with no fans required.



During follow-up visits to people who used wood-burners, I was able to observe how different individuals handled wood-burning, including the drying and storage of their fuel source. I encountered some surprising situations and I came to realize that this deceptively simple procedure was not that simple a science. Generally speaking, people from rural or small-town backgrounds such as myself who had not totally succumbed to the age of the thermostat were able to master wood-heating on a day-to-day basis. Others, never having experienced wood-burning during their lifetime, found wood-burning difficult to adapt to, onerous and, in some cases, frightening. For these folks, wood-burning tended to be a short-lived experience.

Throughout much of mankind's history it would have been the main source of heat and warmth. The move back to this type of heating may be viewed by some as a regressive. Instead, I see it as a step in the right direction.

### 1330

The earth has evolved with wood fire occurring in nature. A forest's normal progression includes growth, decay and fire on a continuing basis, constantly renewing itself in an endless cycle. Fire in itself has always been, and continues to be, an important component of a healthy forest ecosystem.

There are serious doubts whether man would have evolved or even survived as a species without the benefit of fire and the use of wood as fuel. Utilizing wood has provided mankind with much scope for inventiveness and imagination throughout his history. A wise society does not discount the hard-won lessons of those who came before us. We can learn a lot from the trials, mistakes and successes of our forbears.

The last few years have seen a resurgence of the large tile and masonry wood-burning stoves initially developed in northern Europe centuries ago. The original concept of these heaters was simply to create a mass of rock that held and stored heat, which then radiated into the dwelling. Modern construction methods have steadily refined and improved upon this marvellous idea by utilizing proper chimneys, for instance, something that was lacking until less than a few hundred years ago.

To say that I am impressed by the modern version of these units is an understatement. They are amazingly efficient and, from all reports, remarkably clean-burning. The smoke from early, crude models of the tile stove found its way out of the dwelling in a variety of ways, usually through a hole in the centre or the gable ends of the home. Today, the chimney forms part of the mass of the tile stove and helps to make it the efficient unit it has become.

Ideally, I must emphasize that chimneys should be built inside the dwelling, not in an outside location or even on an outside wall. The closer the installation to the middle of the house, the better the heat distribution. In northern Europe today, these tile stoves are a focused point of the home, providing a centre of warmth, comfort and beauty.

Many incorporate seating in their design, as well as cooking services and baking ovens. They are not meant

to be fired continually; usually once or twice a day is sufficient, depending, of course, on the severity of the weather. Nor do they utilize a lot of wood, storing heat with a minimum use of wood.

Unfortunately, North American society has been slow to grasp the benefits of this type of wood-burning appliance. There are several reasons for this, and space requirements are one of them. These units are quite large and heavy. The initial costs can be high, in the neighbourhood of \$15,000 in Canada. However, in my opinion, this type of heating should be thoroughly investigated because of its clean burning properties and efficient use of wood as fuel.

About 15 years ago, the outdoor wood-heated water heater became very popular in our area. This model pumped warm water into the dwelling, and in some cases the warm water went directly into the existing plenum, into which a radiator had been installed with the air blown through it by a fan already in place in a typical hot air system.

These units were not without their problems. Initially, the insurance companies balked at the antifreeze solution which was added to the water in case of a prolonged shutdown, fearing possible damage in case of a rupture to the interior of the home. Then problems of heavy smoke and much liquid creosote became apparent. This took its toll on the units themselves, many of which became inoperable. Neighbours complained of the acrid smell of smoke that drifted downwind, and from the owner's standpoint, they did consume an awful lot of wood. They were very inefficient, in other words. The jury is still out on this method of wood burning, but I wouldn't be surprised that with some re-engineering, they could be a viable option, however.

When discussing wood burning with many different people, the smoke pollution problem frequently comes up. We have all heard of numerous cases of palls of smoke hanging over certain valley communities. Stop-burning orders are being issued by cities and municipalities in an effort to combat this problem. These are legitimate concerns, which need to be addressed.

In the early 1980s, when wood burning had a resurgence, many small manufacturers got into the wood-burning appliances. At the time, little effort had been put into the study of efficient wood burning, that is, proper air induction. Most of these early efforts fell by the wayside. Fortunately now, I've noticed in the last few years, there are a few companies which have since developed the right methods of doing this air introduction.

There are several wood-burning appliances on the market today which are very clean-burning. These wood-burning units are designed to direct airflow into the appliance for a primary and secondary burn in order to achieve full combustion. This in turn results in a clean burn. The only evidence of smoke in such a unit is usually water vapour being admitted into the air. Some people might look at that as smoke, but if it's without colour, it's mainly water vapour. Rigorous testing of

these units would serve to answer some lingering questions, such as the exact amount of particulate emissions being produced.

My personal observations lead me to conclude that when chimneys attached to these units are installed inside the home, there is little or no evidence of creosote buildup at all. During the 1980s, I entered into a discussion with a professor at a Toronto university regarding the viability of catalytic combustors. These units were designed to be attached to the smoke outlets of wood-burners to facilitate the complete combustion of unburned gases. The university went on to test this type of add-on; however, my meetings with the professor proved to be less than productive, as my opinions differed fundamentally from his.

1340

Then as now, I realize that a proper burn by injecting both primary and secondary air into the appliance would eliminate the need for such an add-on feature. The combustors proved to work well in some cases, but seemed to wear out quickly. In some circumstances, small particulate matter plugged them up, rendering them useless.

Because of the availability of wood supplies and the escalating cost of electricity and natural gas, wood burning continues to be both a practical and an economically viable means of heating in northwestern Ontario. Wood burning does involve effort, some of it enjoyable, some less so. It is not for the faint of heart, the indolent or the couch potato. As a late emperor called Francis once observed, "I believe it requires as much talent to warm a room as to rule a kingdom." If he were alive today, I would be pleased to introduce him to some innovations in wood heating which might change his mind.

In my youth I was taught that wood heated us many times over: when we cut it, stacked it, hauled it inside and again when we burned it in the stove. This truism still applies. On the other hand, there's nothing quite like stepping into your home on a cold winter day and being greeted by the comforting warmth of a wood-burning fire.

While recognizing the problems that remain to be addressed in the years to come in regard to wood burning as a viable alternative, I still have a strong belief in and commitment to wood burning.

With that, I have drafted up four recommendations that I would like you to consider as a group.

**The Chair:** We have approximately three minutes left, so go ahead with the recommendations.

**Mr Rasmussen:** I will be finished in three minutes.

(1) That the committee set up a group to investigate the true costs of insurance as they pertain to the wood-burning industry.

(2) That a serious approach be taken to promoting the adoption of building methods incorporating solar heat, for instance, Adobe housing using straw bales as a building material should also be looked at.

(3) It has recently come to my attention that our government of Ontario has issued new guidelines grant-

ing exclusive rights to all fuel wood resources in this province to the forest industry. This could have a major impact on individuals looking to harvest their own fuel wood on crown land. These guidelines should be looked at again in view of their possible future impact on the wood-burning industry.

(4) The study, exploration and further development of wood-heating devices and appliances, emphasizing efficiency, safety and pollution controls, should have a high priority.

I would like to thank you for allowing me to share my thoughts on wood burning. It is not often that one gets an opportunity to talk at length on something one feels passionately about. If I have in the process convinced you, I'll have done my job.

**The Chair:** Thank you very much for a most interesting presentation. Unfortunately you're coming out right at the 20 minutes, so we don't have time to pose questions to you on your presentation. But thanks for joining us from Kenora. We appreciate your taking the time. Certainly this is a different approach with wood burning and one that we shouldn't forget.

**Mr Rasmussen:** Right. What I'll do is mail you a copy of this so that it can be distributed or whatever.

**The Chair:** We would appreciate that. The clerk will look after distributing it. Thank you very much and have a good day.

#### UPSALA FOREST PRODUCTS LTD

**Mr Steven Lukinuk:** Hello from Thunder Bay.

**The Chair:** Hello. Are you hearing us OK?

**Mr Lukinuk:** Yes. Actually, I might even turn down the volume a little here.

**The Chair:** Welcome. We're moving east: we were in Calgary, Kenora, and now we're into Thunder Bay. We appreciate your joining with us.

Our next presenter is Upsala Forest Products Ltd, division moss land peat, and Steven Lukinuk, consultant. If you don't mind, maybe you can just state your name and introduce the other two. You have 20 minutes for your presentation and questions from the various caucuses here.

**Mr Lukinuk:** My name is Steven Lukinuk. We're at Thunder Bay, Ontario, Canada. Next to me is James Vibert. He's the principle and president of Inwood Forest Products Ltd. With us is Brenda Veilleux. She is with the company.

Just to explain a wee bit, I am an ex-lawyer, a retired lawyer, and have done much work with Mr Vibert and his company, which is Inwood Forest Products, and Upsala Forest Products Ltd, located about 100 miles west of Thunder Bay. Mr Vibert is quite a successful contractor with the local pulp and paper company, Bowaters, and he has become interested in producing peat.

By a letter dated February 21 this year to the local natural resources office, an application was made for the right to search for peat in the Upsala area where Mr Vibert's company is and where his home is. By reply on



March 12, the provincial policy statement of the ministry was given to us. They gave us certain information that we would have to have a work permit. Subsequently they changed that and Upsala Forest Products, its division, has the right to search for peat in the Upsala area.

There was no work permit required, so we proceeded to explore the possibility of peat being produced in the Upsala area. Mr Vibert has retained a series of consultants. The prime consultant is a Dr Rouse Farnham of the University of Minneapolis, a retired professor who has spent his lifetime in the peat business. The second individual is Wayne Tedder of Calgary, Alberta, who has done a large number of commercial peat operations in Alberta and was previously a government employee dealing with peat in that province.

A lot of effort and a lot of resources and funds have been expended in the Upsala area serving the peat potential this year. The basis of the work was a series of publications by Ontario, the Ontario geological surveys from 1982 to 1985, which was the last crunch in the energy crisis. It peaked in that period. The OGS, the province of Ontario, carried on the Ontario peat land studies, six large studies using large consultant organizations throughout the province. It was an inventory project, part of the hydrocarbon energy resources program of the province. We used their reports as the basis of our surveys and the work done by the two consultants. The work was done with those consultants over this summer. The company has hired Lakehead University to do testing on this material and for quality control.

1350

What we found, just by way of background to give you some statistics, the OGS surveyed 1,400 peatlands in the area, each of which was over 100 hectares. That worked out to 72,600 hectares of peatlands being surveyed. They contained an estimated 1.530 billion cubic metres of actual peat in situ, in location. That was the survey. The overall area was about 700,000 hectares of peat, being poor material in conifer swamps. There were 260,000 hectares of higher potential, being the type of peat that might be usable both in horticulture and as fuel.

Peat in this area breaks down into two types: there's the horticultural, which we call the unhumified—it was 32% of this vast volume that I gave you above; and the humified, the fuel grades—39% or 40% of that tremendous volume that I gave you earlier is fuel grade, according to the OGS.

Ontario uses large quantities of peat today. It produces virtually none in the agricultural. There's no fuel peat of any consequence that we can find that's being retailed or used in the province. We want to change that if we can. That's why, when your advertisement was issued, we decided to appear before you.

Mr Vibert—Jim—and I know virtually nothing about peat. It's something—there's a lot of money that has been spent and a lot of studies made, and this summer we're learning. The survey done with these consultants from Minneapolis and Alberta over the summer tended to

show that horticultural peat is potentially able to be extracted provided that a sufficient area and depth are found, with the extraction to be in compliance with the anticipated environmental impacts of such an operation.

Our present studies indicate a great lack of area with sufficient agricultural peat to proceed with producing only the agricultural material. The agricultural material and the fuel material occur in the same bogs, one on top of the other—the agricultural on top and the fuel beneath it. If the fuel peat were able to be recovered and sold in the same process as the horticultural peat from the same bogs and fens, then the situation would change. This is why we're here; you can see why we're here before the committee.

We want to recommend that the committee consider the following:

First, fuel peat production uses electrical plants as part of the operation. Fuel would be burned to produce electricity. We recommend that this be fully investigated and reported on by this committee, your committee. There is a whole series of regulations and a large number of ministries involved.

We also recommend that you look into this, and if the peat process, the fuel peat, is to proceed, the whole process has to be greatly streamlined. I think there are about six ministries directly involved. The applications are from one ministry in the name of another. The streamlining should be paramount if the industry is to proceed.

We point out to you that our information is that Finland and Ireland experience using peat to produce 10% of their electrical requirements. It may be necessary to do this in Ontario in the future. If so, we want to be part of it. The technology to lessen the concerns about the CO<sub>2</sub> and other gas that might be impacting on the environment in the burning of the material is very highly developed in California and other areas and is presently in place. It may be costly, but it's there. The effect on the wildlife habitat of the bush operation, the extraction process, we believe is manageable and can be beneficial.

The final recommendation is that if in your wisdom there are to be incentives available to the development of the alternative energy forms, they should be applied to peat production as well as any other form.

That's basically what it is. If there are any questions of myself or Mr Vibert, who has done the in-field work and is funding the whole operation, we'd be pleased to try and answer them. Thank you very much for being kind enough to have this videoconference with us.

**The Chair:** We appreciate your comments, and your presentation is unique. We've not heard one along this line so far. The questions: we have about two minutes for each caucus, beginning with Ms Churley.

**Ms Churley:** First of all, Chair, do we have a document in front of us?

**The Chair:** Not at this point.

**Ms Churley:** Will you be providing us with your speaking notes or some documentation?

**The Chair:** You'll be sending your presentation to us, will you?

**Mr Lukinuk:** We can. The secretary or whoever I dealt with indicated that there'd be no handouts, so we proceeded on that basis.

**The Chair:** We'll copy it for you.

**Ms Churley:** That would be useful, because we're rushing madly ahead on this committee, and I know that the time frame was very short. I appreciate very much the opportunity to hear your proposal today, and I look forward to delving into it a little more. Thank you.

**The Chair:** To the government side.

**Mr Hastings:** Sir, thank you for your interesting presentation. I'd forgotten about the vast peat deposits in northwestern Ontario. Way back, about 10 years ago, I visited the Upsala wood operation.

In addition to supplying us with your submission, could you also provide us with the names of the two consultants you have been working with, especially the one from the University of Minnesota. Also, could you supply us with where in California—or what company is the manufacturer of the heating process for peat production and any technical studies they have as to how it impacts the air quality where they're using it. That would be especially helpful for the vast experience they've had with this product in Ireland.

Thank you very much for your comments. It's an eye-opener.

**The Chair:** Would you like to make any response to that or just send in the information?

**Mr Lukinuk:** We believe that between Wayne Tedder and Rouse Farnham in Minneapolis, both of these requests can be fulfilled.

**Mr Ouellette:** My question is: with the abundance of forestry waste products in northwestern and northern Ontario, why would you go to peat as opposed to wood waste products, as in the case of Hearst, for example?

**Mr Lukinuk:** Mr Vibert will handle that. He's dealt with both over his lifetime as a sawmill operator and as a present chip manufacturer.

**Mr Jim Vibert:** We did use utilize wood waste, bark and sawdust in our waste burner that heated a dry kiln. That technology is quite traditional. We're in a small, distant community where there's a little bit of a problem about transporting any current back to the main hydro grid. Peat and biomass are comparable supplies, but the program that we're on now was to look at the horticultural peat. We have studied other major public companies that are manufacturing that, and in our exploration work we realize the majority of the volume is oxidized and deteriorated to a fuel grade. Some of the reading has indicated that this can be made into pellets and then taken to a generating station. So we're working on peat and we're familiar with wood waste.

1400

**Mr Parsons:** This is also a topic I literally knew nothing about until today. When you talk about utilizing peat to generate electricity, are you talking a major electricity plant or are you talking small plants that would

serve an industry or a community? Are you talking about hooking into the grid or being on its own?

**Mr Lukinuk:** We believe it should be both. The technology in Ontario has been completely ignored; it hasn't been done. The surveys by the OGS in the 1980s or approaching that, as we take it, as we understand, the price of oil becomes reasonable and the second stage has not been undertaken. This is what we suggest the committee should be directing some of its efforts towards. We're saying we're ready to help.

**The Chair:** Thank you for your presentation and for joining us this afternoon. It was very interesting, and it's certainly obvious from your presentation there are very different concerns in northern and northwestern Ontario than in southern Ontario. Have a good day.

On behalf of the committee, to those who have been handling the technology for these three videoconference calls, excellent job, very well done. I think that worked extremely well.

*Applause.*

**The Chair:** A little applause would be in order, certainly.

*Interjection.*

**The Chair:** They're just saying they want money.

## HYDROGENICS CORP

**The Chair:** Our next presenter is, Jane Dalziel, director of marketing and government liaison for Hydrogenics. Please come forward to the microphone.

**Ms Jane Dalziel:** Thank you for this opportunity to present to you today and to contribute to the fuel cell technology perspective, together with other fuel cell proponents, who either have presented or will be presenting.

I represent the company Hydrogenics Corp. We're a six-year-old fuel cell company based out of Mississauga. In addition, we have a facility in upstate New York, and an Asia-Pacific regional office in Tokyo, Japan. We presently employ 108 people and are rapidly growing. I might add. Primarily these people are at our 95,000-square-foot facility in Mississauga. We expect to be about 126 by year-end. The company is publicly funded as of October of last year.

Hydrogenics is solely dedicated to the commercialization of PEM—that is, proton exchange membrane—fuel cell technology. Right away I'll say I don't expect you to know Hydrogenics as the household name Ballard has become. We are working a somewhat different business plan from other fuel cell companies, and our commercialization approach has been a quieter one, at least on the public front. Our strengths lie in fuel cell system integration as well as in core fuel cell technology; for example, the development of the PEM fuel cell stack.

Our first commercial product is a line of automated fuel cell test systems known as FCATS. We supply and support many of the world's leading fuel cell developers with these highly engineered systems that provide critical fuel cell operating systems for their fuel cell stacks under development. Currently, we have about 100 of these



systems in use around the world, with the majority of our customers being located in the US, the UK and Asia. These FCATS systems, ranging in price from \$100,000 to almost \$1 million, represent a very substantial investment by progressive fuel cell developers. Several of our customers even have multiple systems within their fuel cell labs.

What many people do not realize is that fuel cell technology involves much more than the fuel cell itself. There is an entire system that needs to be built around the stack to make it produce electricity efficiently. There is a distinct possibility, in fact, that the fuel cell stack itself will become a commodity that's primarily manufactured out of Asia. This larger, value-added system requires a great deal of new technology, as well as modifications to existing technology. Together it all makes up the greater body of fuel cell technology.

As a pioneer in the system integration aspect of fuel cells, Hydrogenics has learned first-hand how difficult it is to source suitable components for fuel cell systems. They just don't really make them yet. Through our hands-on approach of making it work, Hydrogenics has developed as a leader in the design and manufacturing of the entire fuel cell system and component subsystems. Our broad technology base targets us for all three major markets in stationary, transportation and portable power.

I suspect the reason we are here today is because Ontario is preparing to face some important decisions on two critical fronts in particular: the environment and the preservation of our industrial economy. Perhaps we wish to consider that the improvement of one doesn't always have to be to the detriment of the other.

On the environmental front, we are starting to see the quantifying of Ontario deaths that are directly attributable to environmental pollution, in particular smog. Before long they will be adding to that the number of additional deaths that are deemed to be indirectly attributable to this pollution. These statistics are becoming public knowledge, and the demands to find effective solutions are getting louder and more persistent.

Fuel cells present a tremendous environmental benefit, as the only emissions they give off are heat and pure water. This is a well-broadcast fact, so I will not belabour it here now. However, I certainly do not want to mislead anyone. There may still be emissions that are associated with the means by which the hydrogen fuel is generated.

There is no question that one must look at the entire cradle-to-grave process of delivering power. Even if we look at electrolysis of water—which is taking water and splitting it into hydrogen and oxygen—to produce the hydrogen, we need to consider where the electricity is coming from. Is it from a dirty coal-fired generating station or is it from a clean hydroelectric generator?

The other common source of hydrogen is from the reforming of hydrocarbon fuels that are rich in hydrogen, such as natural gas. In this reforming process, a carbon emission is in fact released to the atmosphere. Nevertheless, mainly because fuel cells are so efficient, the emissions are far less than those that would be released to

get the same delivery of power from an internal combustion process. Also, because of the lower temperatures in the electrochemical process of the fuel cell, there are zero NO<sub>x</sub> emissions. As a result, the reduction in smog would still be dramatic even if a hydrocarbon fuel is used as the source of hydrogen for the fuel cell. This fact makes for an excellent interim solution that can help advance fuel cells into commercialization for certain applications by relying on an existing fuelling infrastructure, even if it is not yet the totally clean solution.

I hasten to add that there have been some very promising developments for mass hydrogen production from renewable sources that are totally without undesirable emissions. Of course, this is the ultimate goal of fuel cell commercialization. All being said, in the short and long term, fuel cells offer an excellent environmental solution for widespread production of power.

Next, I wish to address the interests of Ontario's economy in the light of broad fuel cell adoption. The fact there is a full system that needs to be integrated around the fuel cell is part of the challenge of the technology but it is also part of the opportunity, especially for someplace like Ontario that has an existing multi-tier parts supplier industry, primarily for the automotive industry. The fuel cell industry is not a dot-com; rather, it will be a manufacturing industry. That is what Ontario is good at, and it is why Ontario should be sizing up the opportunity.

As you have already heard, the potential of fuel cell technology is tremendous, largely because of its universality and its scalability. In other words, it is capable of providing an attractive power solution across a wide spectrum of applications. Certainly the prospect of a fuel cell car has captured the imagination of the public. However, other significant markets are likely to emerge a couple of years sooner than the transportation market. For instance, in the area of distributed power generation, fuel cell power has the ability to be installed in microgrids that can serve electricity needs in a local fashion without a large capital investment in infrastructure. In the climate of a deregulated energy market, this has great potential.

1410

In particular, fuel cells are looking very attractive in areas that have been without electricity to this point. Thinking globally, which we must, some of these areas, parts of Asia in particular, have very large populations. This means that if the technology gets a toehold there, volumes could skyrocket quickly, thus lowering costs and establishing fuel cells as a power technology of choice for widespread applications. The message to take from this is that the fuel cell technology sector is very global. Momentum can come from anywhere in the world and take the rest of the world with it. This is why Hydrogenics has put a great deal of effort into establishing global relationships and presence.

There is a great deal of groundwork to be laid if fuel cell technology is to be adopted as an alternative to existing power delivery systems. There are several jurisdictions that have already made substantial financial and

policy-driven commitments to the adoption of fuel cells as a power alternative. It would appear that Ontario is already in a catch-up position, especially considering a recent release from Michigan's Economic Development Corp announcing a major initiative to make the state a leading fuel cell manufacturer.

Michigan has much the same interests and infrastructure as Ontario. All the things that Michigan does not want to lose by remaining dependent on old technologies are the same things that Ontario does not want to lose, and the measures they are looking at to re-tool the state of Michigan are many of the same things that Ontario will need to do. And the proximity of Michigan to Ontario is always a factor to be considered when there's a desire to keep our jobs in Ontario. We believe this particular initiative in Michigan may create the greatest concern for Ontario, should fuel cells show indications of emerging into power markets.

Please don't take from this that fuel cell power is the be-all and end-all. Of course it's what I came here to talk about today, but at Hydrogenics we have always maintained that it will be a mosaic of power technologies that arises to transform the power industry as we know it today. What fuel cells provide is outstanding reliability and versatility compared with other alternative technologies. They don't need the sun to shine or the wind to blow. Nevertheless we believe that some of the best solutions will in fact integrate different power technologies. Again, fuel cells are very adaptable to such solutions.

I am going to close by raising a question that we in the fuel cell industry often hear. It goes something like this: "We've been hearing about fuel cells for a long time. So why does everyone think that now they are a happening thing? Is it maybe just all hype?"

We have to remember that fuel cell technology is what is known as a disruptive technology, or you could call it a displacement technology. In other words, it has to push other existing technologies out of the way to take its place.

First there is a cost issue. As we all know, any new technology is at first very expensive, so dislodging an existing cheaper technology is all the more difficult. Those of us in the fuel cell industry don't worry that costs won't come down as volume goes up. There is no reason they won't.

Second, there is the whole matter of creating change. Because of the nature of fuel cell technology, there will be profound change in many things as we know them now, and a lot of people and organizations don't exactly embrace change. Governments are often compelled to listen to these people and organizations. In addition, Canada's wealth of oil and gas has allowed us to say for the last 10 to 20 years that we have something that works and we're profiting very well by it, so why change.

Well, in view of the environmental and economic issues I have highlighted here, we are now seeing very real reasons to change, even if there are still substantial supplies of oil and gas available to us. These reasons to

change have introduced strong drivers behind alternative energy development, resulting in the investment of unprecedented amounts of private and public money all over the world, in particular toward fuel cell development. Maybe fuel cells have been in the lab for a long time, but it really wasn't until the last five years or so that the means to commercialize the technology came forward, along with the interest to do so. It's really been a whole new ball game. The advances in the last few years have been very impressive, and all indications are that there is more on the horizon.

I just want to add that we are an active member of Fuel Cells Canada. We have given them input in terms of recommendations that we know have come forward here, so I haven't made a point of going over them again, but make the point that we support their recommendations fully.

**The Chair:** We have approximately two minutes left for each of the caucuses to question.

**Mr Gilchrist:** Thank you very much for your presentation. I think you've covered the subject very well. Like you, I see this as a technology worthy of a lot of further research. I have no doubt that Michigan won't be the last state to light a fire under our backsides to make sure we retain our competitive advantage.

If you would, I would like you to expand on your suggestion for distributed power and where you see, in a realistically short time frame, the opportunities, geographically and by population. For example, would it be realistic to suggest that within the next five years fuel cells, perhaps in combination with solar or wind turbines, would form the replacement energy option for all northern developments, all the native reserves and our remote communities north of the 52nd parallel?

**Ms Dalziel:** As far as Canada is concerned, that is the geographic region that would probably be the first to look at this technology as a solution. If you look at the United States, they've got all sorts of pockets there, and then you could look at Asia. As I say, there are all parts of the world that don't have electricity. But yes, northern Canada is where we could look at that. One of the beautiful things about fuel cells is that they operate very well in cold temperatures.

**Mr Gilchrist:** Recognizing that the federal government spends an awful lot of money in some cases on those reserves, have you any sign of progress in terms of federal supports for R&D in this area, anything we haven't seen yet that you know is in the works?

**Ms Dalziel:** No, nothing I know of. We had an NRCan grant a couple of years ago that would actually develop fuel cells for a cold climate. Actually, we have a patent that is in particular for fuel cells in a cold climate. So that was developed. We now are assured of the capabilities of the technology in that climate.

There is nothing new in the pipeline that we have seen except that there is getting to be more federal interest on the whole. On the transportation front, which is different, next week I'm at a two-day kick-off meeting of an alliance called the Canadian Transportation Fuel Cell



Alliance. It's the Canadian equivalent of CARB in California. So that's on the transportation front. That's getting I can't remember how many millions of dollars but it's certainly very substantial.

Specifically on the stationary power front or distributed power, we haven't seen any initiative in particular coming from the federal government.

**Mrs Bountrogianni:** Thank you very much for your clear and forthright presentation on the pros and cons and the obstacles, but also the advantages, of fuel cell energy. You did mention, and I agree, that change is difficult for humans in general. Do you have any suggestions for the government, for the industry, for both, on how we can work together to educate people on alternative sources such as fuel cells?

**Ms Dalziel:** As far as the public is concerned, there is nothing that makes the same kind of hay as demonstration projects. I'm sure this is something that Gordon Potts may have brought to your attention last night. It's demonstration projects which put fuel cell technology either in a bus or the Zamboni at the Air Canada Centre or in a stationary application or whatever. It lets people see fuel cells at work. It helps to dispel the Hindenburg thing that people will continue to bring up. It also shows that the province is supporting clean power technology. I can't say enough really about the value of demonstrations on that front, if it's broad public awareness that you want to reach out to.

Certainly, on schools, there should be so much more being introduced into the curriculum in the schools. Fuel cells fall under the category of electrochemistry, which is never something that people get too excited about, but at the same time the fuel cell industry is very multidisciplinary. We have within our staff chemical engineers, mechanical engineers, physicists, electrical and electronics experts—they cross a very wide range of engineering and technical disciplines. I think if we can get something more into the schools, that would be very valuable as well.

1420

**Ms Churley:** Thank you very much for your presentation. Some of us believe that we don't have a lot of time to waste, so to speak, in getting these cleaner forms of energy up and running. One of, I think, the misconceptions is that the existing dirtier energy production is not subsidized. If you look into it, one of the reasons costs are being kept down—let's look at the nuclear industry, for instance, and how heavily it's been subsidized and continues to be, even though it's now private. They remain shielded by I believe the liability from all but \$75 million of that. So that subsidy is ongoing. That's just one example. When we keep that in mind, the reason our energy costs are so low is because of these subsidies. The problem we have to do—and I know it's very complex. You talk about this being a disruptive technology, so there's that complexity as well. But we are not paying full costs for the existing energy. I just wanted your comment on that, because you did say that because of higher costs, it's hard to bring on. But we're paying

more for cleaner energy than we are for dirtier energy, and there's something wrong with that picture.

**Ms Dalziel:** I'd have to say there's something wrong with that picture. It's really kind of stacking the deck against new technology when it's already kind of stacked against them just because of it—

**Ms Churley:** Yes. What do we do?

**Ms Dalziel:** Good question. I must admit I wasn't that much aware of the level of subsidy on existing—

**Ms Churley:** It's big.

**Ms Dalziel:** That's the sort of thing that government has to step into and say that they're going to even the playing field. What we have to do is be prepared to add or acknowledge a value for clean energy, instead of just saying, "Here's your dollars per kilowatt and here's your dollars per kilowatt." You have to say, "It's worth this much," sort of quantify it, to have it clean and to have the benefits of a new technology that can bring real benefits to the table. If we can't be allowed to quantify that to some extent, then it makes our task that much more difficult.

**The Chair:** I appreciate your coming forward and presenting to us—

**Ms Dalziel:** I appreciate the opportunity.

**The Chair:** —and sort of orienting around that social cost at the end that we're referring to, so thank you.

**Ms Dalziel:** It is something that would be nice to get a handle on.

#### ONTARIO NATURAL GAS ASSOCIATION

**Mr Chair:** Our next presenter is the Ontario Natural Gas Association, Bernard Jones, president. Please introduce yourself and your associate.

**Mr Bernard Jones:** Thank you very much, Mr Chairman, select committee. I'm Bernard Jones, president of the Ontario Natural Gas Association.

**Mr Brian Soutiere:** I'm Brian Soutiere. I'm director of ONGA and senior vice-president of direct energy and marketing.

**Mr Jones:** I'll read a short submission and then we'll be happy to take questions if that's, as you say, the way to proceed.

The Ontario Natural Gas Association—or ONGA as it's known—is a broadly based energy association with membership from across the energy industry, including transmission and distribution utilities, power generators, natural gas and electricity marketers, manufacturers, contractors and service providers, and legal, environmental, engineering and other consultants. So we have a pretty broad view of the energy industry.

ONGA is pleased that the all-party special committee on alternative fuel sources has been appointed to study and make recommendations on "environmentally friendly forms of energy generation that could offer alternatives to the province's existing fossil fuel sources." We believe the study will serve as a complementary step toward government plans for protecting the environment and for the opening of the electricity market.

In examining alternatives to fossil fuels, it is important for the committee to appreciate the relative economic and environmental significance of fossil fuels, both for comparison with each other and also with the alternatives. This summary submission addresses the significance of natural gas options.

Natural gas is a fossil fuel. It is the fuel of choice and is the largest single source of end-use energy in the province. The reliance on natural gas by Ontario industry, offices, homes and institutions reflects the availability, reliability, safety and competitive cost of gas, as well as the fact that natural gas is also an environmentally preferred fuel. Natural gas technologies are energy-efficient. The full-cycle environmental impacts of natural gas production, delivery and use are much less than for other fossil fuels.

Across North America, demand is rising for natural gas because of its advantages over fossil fuel alternatives. The fastest-growing area of demand is for gas use in electricity generation using higher-efficiency gas technologies. Stationary fuel cells, microturbines and natural gas vehicles are forms of energy generation at various stages of market development that will principally use natural gas. Natural gas is positioned to serve increasing demand for the foreseeable future. It is also providing a vital bridge while solar and wind and clean coal technologies are developed and commercialized in sufficient volumes to significantly help meet growing demand.

No fuel source is completely benign in its environmental consequences. Solar, wind and small hydro are renewable energy sources with low full-cycle environmental impacts. ONGA supports market-based solutions to encourage these renewables with the objective of having them competitive in the longer term. Gas-fired cogeneration is another lower-impact option that can deliver net reductions in emissions. Older noncompliant boilers, for example, tend to be replaced with new gas turbine technology. The electricity self-generated displaces purchased electricity, which on the margin is principally derived from coal- and oil-fired generation.

Other alternatives to fossil fuels, such as energy from waste, large hydro and nuclear power, even where some may be classed as renewable, can have significant environmental implications in terms of air emissions, land use and waste disposal. Natural gas and natural gas technologies are environmentally competitive in this shades-of-green area. It is here where undue interference with market mechanisms could cause the most problems. New large hydro potential is limited in Ontario, and new nuclear plants require huge amounts of capital and have long lead times, exposing projects to significant economic and financial risk. Cleaner coal-burning technologies are not yet commercially proven.

In contrast to the generation at large-scale plants, distributed generation, which is principally using natural gas technologies, including proven combustion turbines, combined cycle and cogeneration, locates power production closer to the customer, thus limiting the need for expansion of transmission systems and minimizing energy losses in transmission. It also requires less reserve

capacity and is less vulnerable to power supply disruption. Cogeneration projects are a particularly efficient method of generating electricity and steam, and when distributed around the province, close to loads, tend to make the entire transmission network more efficient by providing grid stability, voltage regulation and alleviating grid constraints.

Fortunately, distributed generation is providing relatively short lead time, lower risk, competitively priced and environmentally acceptable energy options. Moreover, new technologies are emerging that offer great potential for environmental benefits in the generation of energy, including fuel cells and microturbines. I know that you're hearing about those applications. Many of these technologies will also use natural gas. That's an important point to note.

ONGA makes the following recommendations:

First, recognition that for economic and environmental reasons, distributed generation is the appropriate future strategy and direction for Ontario.

Second, market-based initiatives for wind and solar to encourage the growth of these emerging industries over the longer term.

Third, market-based incentives, where applicable, for emerging technologies, including fuel cells, microturbines and clean coal-burning technologies.

Fourth, market-based incentives for high-efficiency, low environmental impact natural gas technologies.

In our view, market-based incentives would include such measures as: accelerated depreciation allowances on research, development and demonstration, or RD&D, expenditures and projects; favourable independent market operator market rules, including the tracking of electrons from renewable sources and preferred dispatch; emissions trading, emissions monitoring and reporting systems, and other government regulatory policies that can help create a positive business environment in which green energy options may flourish; industry-government-academic partnerships in funding energy RD&D; and customer education programs.

#### 1430

Let me emphasize that ONGA does not recommend mandatory marketing regimes that would attempt to artificially stimulate the supply of alternatives to fossil fuels, distort market prices or obscure cost and price transparency.

ONGA is working in partnership with energy industry stakeholders and the government to help shape and implement appropriate environmental policies and programs, including emissions standards, emissions monitoring and reporting and emissions trading. In our opinion, it is important that strategies for alternative fuels be developed within a broader energy strategy focused on sustainable development and with a positive Ontario-federal dynamic.

In concluding, I'd like to say that ONGA plans on providing the committee with additional information on gas options in a more detailed written submission in the fall, if that is OK. In the interim, if the committee has



questions, we'd be pleased to address them now or in our subsequent submission. Thank you very much.

**The Chair:** Thank you for a very concise presentation. We have a good three minutes for each caucus.

**Mr Bradley:** My first question would relate to the Lakeview generating station, which supposedly is going to be converted to a gas-fired station. The option that appears to be the option today is that they're using virtually the existing equipment and put in natural gas. What would be the advantage to putting in high-efficiency natural gas-burning equipment, as opposed to using the present boilers and the present equipment at Lakeview generating station?

**Mr Jones:** It's a question which requires a complex answer, I believe. We're aware of the proposals that have been tabled for converting some of these stations from coal to natural gas. Energy efficiency, of course, is a major question. It could be that firing gas in the boilers is not the correct way to do it, under the boilers, and that combined cycle or some other technology—coal firing, select-use; there are other alternatives—could be considered. But it's difficult for the industry, I believe, to respond. We have to do it on a case-by-case basis, but I'm sure that the industry would respond professionally, if given the opportunity.

**Mr Bradley:** My second question relates to the long-term availability of natural gas. It's a question I've asked others who are in the business. I have a personal concern that the federal government and the Alberta government and whatever other are producing governments are itching to sell as much of their natural gas into the American market as possible. I know in the short term that will encourage development of new gas resources and everyone will cheer and there will be some good economic benefit. I'm looking at the long term. As I understand it, natural gas is a finite fuel and someday the natural gas may all be gone on earth. It may be in the distant future, but there it is. What is your view of encouraging natural gas exports to the United States, when Ontario—I'll be parochial and specific—may well need that natural gas well into the future?

**Mr Soutiere:** As Bernie suggested, that's a complex question to answer as well, but I'll take a stab at it, at the risk of getting cross-threaded with some of the politics. Yes, we will run out of natural gas someday, but at current rates of consumption and the projected undiscovered reserves that are in Canada, that could be as long as 50 to 100 years from now. So it's something that our children and our grandchildren may have to face in real terms, but we do have sufficient projected gas reserves in North America—Canada and the US—to meet our consumption rate and forecast growth for a good, long time ahead. I would say that's 50 years I think we can see that potential in the reserves today.

As to whether the Canadian reserves ought to be preserved for Canadians first and then whatever is left over exported, I think the free trade agreement probably takes care of the answer to that question. Natural gas is marketed as a commodity on a North-America-wide basis

and it goes to the highest bidder; it goes to who is willing to pay the market price.

**Mr Bradley:** That's what I'm afraid of.

**Ms Churley:** Thank you for your presentation. Mr Bradley touched on that they see it as an interim bridge. I think you agree that it's not infinite, none of our fossil fuels are, and that's an issue many years down the road from our lifetime. I guess one of the reasons as well why—first of all, let me say I support it as an interim measure, the conversation of coal-burning plants and some of the other technologies that are coming on stream.

I wanted to specifically—and there are a lot of questions in this short time—ask you your opinion. You mentioned that you don't think that alternative fuels should be given any special deals to come on stream. We're hearing over and over again from the renewables that in this particular climate, with the present regulations and the present lack of incentives, they can't get into the market, that it costs too much and it's causing a real problem. I have a concern about that.

**Mr Jones:** It's a matter of balance. As I say in the submission, we're not against market-based incentives. In fact, we think we need those, the kind I listed. The incentives, if you like, that we would perhaps frown on would be if, on the renewables, generators or marketers would be required by regulation, by legislation, for example, to have a percentage of their power supply or sales served by renewables. In other words, if you're a marketer or a generator, you would actually have to be able to prove that you have 5% or 10% of your power supply coming from renewable sources before you could sell to the customer. It's that kind of thing that we're trying to avoid. We're trying to say adopt a more flexible approach, provide the incentives where they're more transparent and up front, where you know the true costs and can trace these costs, whether it's capital consumption allowances—that's accelerated consumption allowances. You might have a lower corporate tax rate in some areas, that kind of thing.

Certainly we've seen enough price distortion in the marketplace and we know the damage that price distortions cause, whether it's the National Energy Program, whether it's freezing electricity prices while Hydro is going bankrupt. These are the kind of things that create real problems later on. We're saying, if we're going to play the game, let's play the game openly so we can all see and value what's happening.

**Mr Ouellette:** Hopefully you'll be able to answer some of the questions I've been asking the other natural gas companies during our hearings. Have you seen the August 20 issue of Canadian Business on the next energy crisis, with some of the claims in there?

**Mr Soutiere:** Yes.

**Mr Ouellette:** I'm glad your partner has. In there, specifically it goes into minor detail about an Alberta energy board claim. It states that by that year 2003 gas production will peak and for the next five-year period there will be a 2% decrease in production. Also, it states that the US energy board claims that by the year 2015

there will be a 45% increase in the usage of natural gas, yet only a 2% increase in supply.

The potential new lines coming down from the Artic are expected to be on line by 2008 or 2010, yet only replace current usages that are in the market right now. Should the coal-fired locations go ahead in conversion for producing electricity in Ontario, where are we going to get the supply to handle the demands that are upcoming, and at what cost? We saw a substantial increase last year alone in price.

**Mr Jones:** I haven't seen the article but Brian has. Maybe Brian can start the answer and, if there's time, I might finish it.

1440

**Mr Soutiere:** Again, because gas is a commodity, I would say the supply will be there if you're willing to pay the price. So really the question is, what's the price likely to be in that era and will it make sense to fire stations like Lakeview with natural gas if they're operating in simple cycle as they do today?

I think the quick answer might be it won't make sense because the alternative to simple cycle power generation or the combined cycle technologies that the new independent power producers are using, people like Sithe and Trans-Alta and Anron, where you extract overall cycle efficiencies in the neighbourhood of 60% to 80%, the simple cycle efficiency of a Lakeview on natural gas is probably in the neighbourhood of 30%. In simple terms, you extract twice as much energy from the fuel in combined cycle as you would in simple cycle. Another way of looking at that is your fuel costs half as much as it would if you were going to—

**Mr Ouellette:** In that case, would it be better to utilize gas in high-efficiency home units for furnaces?

**Mr Soutiere:** Home or distributed generation such as proposed by Sithe or inside-the-fence-type applications for industrial consumers of power and displace baseload generation from the system supply.

This is a personal view, but I don't think it will make a lot of sense to repower an old station like Lakeview in simple cycle with natural gas.

**The Chair:** Thank you very much for your presentation. The time is up. We appreciate your coming forward and offering to present to the committee.

**Mr Hastings:** Mr Chair, a short question.

**The Chair:** We're out of time. You can ask them to send something in.

**Mr Hastings:** I wanted to find out if you folks could provide the committee with any indications as to whether Ontario has a geological context for discovering natural gas in Hudson Bay.

**The Chair:** Maybe they can send that to us.

#### RESOURCE EFFICIENT AGRICULTURAL PRODUCTION ENERGY PROBE

**The Chair:** Our next presenter is from Energy Probe and Resource Efficient Agricultural Production; Tom

Adams, executive director. There's a total of 20 minutes for presentation and questions and answers. Please state your name as you begin for the sake of Hansard.

**Mr Tom Adams:** My name is Tom Adams. I'm a director of REAP Canada, which stands for Resource Efficient Agricultural Production. I'm also the executive director of a small consumer and environmental advocacy group based in Toronto called Energy Probe. For the benefit of the overhead, I'm just switching positions.

The subject matter that I want to address with you today is an alternative fuel option that our organization is developing for home heating and water heating applications and that is also well adapted for meeting heating requirements for agricultural producers.

In the last few years there have been some changes in the markets for conventional wood-burning technologies where people have been converting to pelletized fuels. Some difficulties have developed in the supply of wood-based fuel, so our organization has been involved actually for many years now in the development of an alternative fuel source that can be used in pelletized form similar to wood pellets but can be produced in an agricultural context with a more sustainable supply and, we believe, at lower prices.

I'd like to introduce this fuel to you, in part by giving you some examples. This is an example of a home heating fuel that's a lot more friendly than a litre of oil or—

**Mr Bradley:** Are these worth over \$200? If so, we have to declare it.

**Mr Adams:** I brought some slides to illustrate what it's like producing this fuel. It's actually a very low-tech product once the fuel cycle has been developed, and the images of its production look a lot like any kind of conventional agricultural field activity. This is an example of the pelletization process. I'll show you an image of what the crop looks like when it's under cultivation. This is a perspective of the crop. It may be hard to see. This is what one of our field trials looks like in the fall.

**Mr Bradley:** What is the crop, again?

**Mr Adams:** The crop that we've developed for fuel application is called switchgrass. It's a native species to this part of the world. It was part of the North American tall grass prairie that existed here in southern Ontario before Europeans arrived. It was the food of the buffalo basically and it turns out that this grass is extremely attractive as a fuel source. You can see here one of the reasons it's attractive. With biomass fuels, one of the big challenges that producers have is managing the water content of the fuel. It makes it very difficult to handle and there can be high costs associated with drying. This is a crop that will dry itself. It stands in the field and it's harvested in the wintertime when the relative moisture content is low enough that it can be safely stored.

The bottom line on this whole package is that we can make cheap fuel. Here's an illustration. We've had field trials running for a number of years now, so we're getting actually pretty reliable information about crop yields and



production costs. One of the things you can see from any review of agricultural commodity prices over long periods of time is that what has happened for hundreds of years, and really thousands of years, is the inflation-adjusted value for agricultural products keeps dropping. Farmers get more and more efficient over time, so feedstocks from agricultural production are, we think, likely to become cheaper and cheaper as per the historic pattern.

That's not the case with wood. There is a bit of wood supply crisis for pelletization. In some ways it's a good-news story. It's difficult for those who have invested in wood-burning appliances, but what's happened in recent years is that Canada's wood utilization efficiency has improved tremendously. The industries that utilize wood for various sod products and whatnot have just found ways of producing less waste and using the waste more valuably. So although wood as a feedstock appears cheaper now, the trend is for wood residues to become more and more costly over time, whereas we think the trend for agriculturally produced fuels like switchgrass is likely to go down.

The bottom line is that the prices quoted here are on a dollars-per-tonne basis. Those figures converted to heating costs turn out to be pretty favourable.

1450

The heating cost line on this graph—all of this data is either summarized in our fact sheet or available on our Web site. You don't need to spend time taking notes. But the fuel price here is very attractive relative to the cost of all the conventional heating fuels, with the exception of natural gas, at current prices. We've calculated out, on the basis of prevailing prices for rural areas, prices for propane heating oil and electricity, and there are very substantial savings to the consumer from switching to pelletized biomass fuels, in particular switchgrass.

Maybe I'll conclude my remarks by summarizing what we think government's role is here. The first observation I would suggest to you is that this fuel technology has already benefited from a number of government research programs: the Agricultural Adaptation Council of Ontario, NRCan and the Department of Agriculture and Agri-Food of the federal government have supported research in the area.

The switchgrass fuel industry has got to a stage of maturity where I think it's very likely that this industry is going to develop even if there is no government support, but there are very significant environmental benefits from switching away from fossil fuels to fuel options of this type, and Ontario has more than enough agricultural capacity to produce enough switchgrass to displace more than twice the entire provincial heating oil requirement, so we have tremendous agricultural potential for this. In quite a depressed sector, a lot of these resources are underutilized anyway. We believe there is a lot of potential for this new crop to help diversify the agricultural economy in rural areas, and rural Ontario in particular.

If the government is moved to assist the industry in some way, I think the effect of the assistance is likely to

only accelerate the development of something that's going to happen on its own, and we've suggested a number of proposals in terms of increasing public awareness, public information, encouraging the consumers who are thinking of using pelletized fuels to opt for fuel combustion devices, an example of which is provided on the brochure, that are capable of burning high-ash fuels. The fuel composition of the switchgrass pellets is about 3% ash, versus wood pellets, which is 1% ash, so it makes a significant difference. You can't just burn the switchgrass pellets in a conventional woodstove or a pellet stove adapted for wood. So if consumers are thinking about pelletized fuel options for home heating, they might be encouraged to opt for more flexible appliances.

There is some work that needs to be done in terms of agronomy research, plant genetics, improving varieties of various kinds, and the University of Guelph is looking at some of this stuff now. The Ontario government has heating requirements of its own for offices and whatnot in various parts of the province and, where suitable, pellet fuel should be considered an option at the appropriate time. If a furnace is being replaced or something, you might consider a demonstration project.

Finally, one area of practical research that's required is some agricultural engineering research in the whole area of making the little pellets. The pellets that you'll see in the bag are not as strong as they should be. The fuel would be more practical and more handleable if the pellets had a stronger integrity. So there are some research needs that the industry has, but basically this looks like a good idea.

I'm open for questions.

**The Vice-Chair:** Thank you very much, Mr Adams. It's Ms Churley's turn to start the round of questions. Would you like someone else to start?

**Ms Churley:** No, no, that's OK. I just opened the bag of pellets.

**Mr Bradley:** You can't eat them.

**Mr Adams:** You can eat them; they won't hurt you.

**Ms Churley:** That's what I was going to ask, actually. There are, I presume, some emissions. You say it's very minor, but I'm just wondering what the emissions would be.

**Mr Adams:** From a greenhouse gas perspective, the emissions associated with the fuel system, the entire fuel cycle, relate primarily to the handling and trucking of the commodities. It's a relatively bulky commodity and there's a certain amount of trucking that's required, and also in the pelletization process the machines are burning some fuels.

**Ms Churley:** So you'd have to take that into account in the total load?

**Mr Adams:** That's right. Taking that into account and comparing with heating oil, there's a 93% reduction in greenhouse gas emissions, and again, the greenhouse gas emissions that are associated with it are on the handling side, the agricultural production side.

Because this is a perennial crop, you don't have to cultivate the fields every year. We've got stands that have been up with sustained production and they're 10 years old. We don't know how long a stand will go, but from the field trials it seems it will go for a long time.

But there are significant emissions associated with combustion—

**Ms Churley:** I think our time is up. Maybe somebody else will follow up on that.

**Mr Hastings:** Mr Adams, you mentioned the University of Guelph's involvement in new products and plant genetics and that sort of thing. I've been to Guelph two or three times since 1995, and they have an enviable record in terms of developing and then working with groups in terms of plant biology and all that stuff. Have you approached the university or been involved with them in terms of working out a feasible pilot project for switchgrass?

As one of the other presenters has noted today, any kind of radical change is a very difficult thing for a lot of communities, and the farm community, while it has adapted in many regards—I'm not so sure that the change here is that radical, but do we have a specific practical demonstration or pilot project involving Guelph and yourself or other companies to see what the potential of switchgrass is, not only from a genetics viewpoint but from the British thermal units coming out of these pellets? As my colleague mentions, there is a company in British Columbia right now selling wood pellets with a higher BTU measurement than I presume you'd find in this aggregate.

**Mr Adams:** You've got several questions rolled together. The agricultural research station at Alfred, in eastern Ontario, had a plan to install one of these pellet-based heating systems that fell through recently. Right now the research effort is primarily focused around Ste Anne de Bellevue and McDonald College of McGill University in Quebec. We have field trials in Quebec, Ontario and southern Manitoba that are running right now. The field trials in Quebec are the oldest ones, but we've got long-standing field trials as well in Ontario. The Manitoba field trials are new.

The University of Guelph's participation in this—off the top of my head, I can't tell you what the contacts have been between our research organization and theirs, so I'll have to get back to you in terms of the detail.

1500

**Mr Parsons:** I had not heard of this before and I guess I've got some questions from a farmer's viewpoint. A farmer who would grow it would then sell it as a large round bale or as a large square bale?

**Mr Adams:** Yes. The round bale technology is what we focused on for handling purposes. We think the most attractive market for this is on-farm energy use: poultry operations, hatcheries, greenhouse operations, some hog operations where they've got substantial heating requirements, people who are now reliant on propane. Last winter they saw propane prices go through the roof. This is a major alternative.

**Mr Parsons:** So you're thinking of a farm growing it, having it pelletized and then returned to the farm.

**Mr Adams:** Yes, reducing the handling.

**Mr Parsons:** So your costing in here of \$46 to \$68 a tonne delivered to a pellet plant, that's essentially the cost of the bale?

**Mr Adams:** Yes.

**Mr Parsons:** OK, because we're buying hay now for about \$36, \$38 a tonne, if I take the round bale and calculate it. So that's in here.

How many years is it viable to seed a field with?

**Mr Adams:** Like I say, we've had a field trial for 10 years and its yield is stable. It actually takes a couple of years to get to maximum yield. We're quite confident that this is going to—this stuff was here before we got here and before there were agricultural practices and it was taking care of itself. This is a very vigorous stand. In dry years the yield depression is something like 10%.

**Mr Parsons:** I wish I had it this year.

**Mr Adams:** Absolutely. Perennial crops have advantages. They can take advantage of the spring moisture and whatnot. But we think that the most attractive place for this to start is on the farm, and that's actually where it's going now. We have more farmers interested in growing this stuff than we have identified markets to put the stuff. The pelletization is not keeping up with the production side right now.

**The Vice-Chair:** Thank you very much for your presentation and your time.

## ENVIROS RIS

**The Vice-Chair:** Our next presenter is Maria Kelleher, director of Enviro RIS. Could you please state your name for Hansard.

**Ms Maria Kelleher:** My name is Maria Kelleher. I'm the director of resource efficiency with Enviro RIS. I'm here today to talk about a technology called anaerobic digestion, which is a suitable technology to process municipal waste in Ontario. The point I want to make about it is that it is a renewable energy source, and it hasn't been classified as renewable energy in the regs as they currently stand.

Just to give you a little bit of context, in Ontario we produce about 4.3 million tonnes of residential waste each year. About 40% of that material is organic, which means it's biodegradable. We currently divert 300,000 tonnes of that to composting, but there's 1.3 million tonnes left that we could process and produce energy with. Each tonne of waste can produce 66 cubic metres of methane, which is natural gas, through anaerobic digestion. Because we produce this every year, it's renewable on an annual basis. The potential if we captured all this waste, which we wouldn't, would be about 80 million cubic metres of methane, which is 800,000 megawatt hours per year.

What is anaerobic digestion? Organic matter is decomposed, in the absence of oxygen, by bacteria. It takes about three weeks in enclosed tanks and produces a



biogas which is 60% methane. This biogas can be burned as a natural gas, so it displaces coal and natural gas in the exact same applications. It's similar to the process that happens in landfills, but instead of taking 30 years, it takes about three weeks, so it's substantially shorter.

I was in Switzerland recently, and I went to see an number of anaerobic digesters, so I thought I'd show you a few colourful slides to show you what they look like. I should just point out there is a huge solar panel on the roof of this building.

The first plant I went to see was Kompogas. It is a Swiss company. This plant processes 10,000 tonnes of source-separated organic waste from households and businesses a year. When I was there, the McDonald's truck was dumping french fries, actually. So the french fries would go into this digester and produce gas in about three weeks' time.

What this company does is clean up the gas and use it as a fuel source for all their cars. Each tank has two nozzles; it can either run on gasoline or the gas they produce at the plant. Here's the director of the company showing the little nozzle where the gas would be loaded directly into his fleet. All their trucks that transport waste are also run by the gas from the plant.

Once the waste has been digested, they take the water from the facility and use it for a hydroponic greenhouse and produce all kinds of wonderful plants, including water lilies, water hyacinths, different foods for fish farms etc. Again, they treat the waste water in a pond with natural plants.

I just want to show that the plant is located in the middle of an industrial area with office buildings right around. So there's not really any odour associated with the plant.

This is a different digestion technology where all the digestion happens in a silo, like a metal silo you see on a farm. This is what the silo looks like. It's six or seven storeys high. The waste stays there for three weeks and produces gas which is stored in a gas tank. The gas is burned in an engine to produce electricity, and the solid waste that remains after the digestion is put in this tank and farmers help themselves and spread it on the beautiful Swiss farmland. So all the waste that goes into the facility gets used.

The benefits of anaerobic digestion really stem from the methane that's produced as a result of the process. Methane is 21 times more powerful as a greenhouse gas than carbon dioxide, so it's much more harmful to the atmosphere when it escapes. Even the very best landfill gas recovery systems do not capture every single molecule of methane, so some if it escapes—very damaging, much more damaging than CO<sub>2</sub> as a greenhouse gas. This is the major environmental benefit of anaerobic digestion.

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For municipal waste, of course, if we put it into a digester we keep it out of the landfill. We've all seen the hassle we've recently had in Ontario around siting of landfills. If we can get 40% of our waste into these

digesters, that certainly solves one of our landfill problems for a much longer period of time. It recovers energy in a very short period of time, three weeks as opposed to up to 30 years in a landfill—a totally controlled system, so none of the methane escapes. In the future, when carbon trading becomes more real than it is today, there will be quite a value to be traded from turning methane into CO<sub>2</sub>.

Globally there are about 60 AD plants in the world. It is on a huge growth curve at the moment. In the last five years about a million tonnes of capacity was built worldwide. This year alone another half million tonnes is being built. So it's increasing exponentially. A lot of these plants are in Europe, for various reasons—19 in Germany, seven in Switzerland, Spain and Italy have four—but in Asia they're really looking at this as a method of solving an energy problem, which is the point I'm coming to. My company did a piece of work for the National Energy Policy Office of Thailand a few years ago, looking at anaerobic digestion as a method of producing energy to meet some of their energy needs in that country.

In Switzerland, the policies that helped promote anaerobic digestion were a requirement that all waste going into landfills be stabilized, similar to the EU directive—Switzerland is not in the EU, but they have similar legislation—and also a slight price preference for anaerobic digestion instead of incineration. The most important part, though, was that there was a mandatory requirement for the local utility to purchase all the energy from these digesters for 15 cents a kilowatt hour, so that helped their bottom line.

Why should we look at anaerobic digestion now in Ontario? Certainly there are a number of people looking at it now to have some price stability over 20 years for a product that's the same as natural gas. Once you build a digester, you know roughly what your price will be for the next 20 years. Market opening creates an opportunity to sell green energy, and in all other countries anaerobic digestion—the gas or power—is considered green energy.

Other reasons anaerobic digestion is coming to life a bit more—it's like the Model T Ford; the first one was expensive, the second and third ones got cheaper and by the time you built a few hundred of them you'd figured out how to do it. As more and more people work on the technology, the price is coming down to probably half of what it was 10 years ago.

I talked about green energy and carbon credits. We have more waste streams that need processing. Anyone in the waste management business, like I am, understands the impossibility of locating a landfill in any kind of reasonable time in Ontario—and it's more publicly acceptable than other methods of recovering energy from waste.

I've talked briefly about carbon credits. The main issue here is that as a greenhouse gas methane is 21 times more powerful than CO<sub>2</sub>. This will have value at some point in the future for trading on a carbon exchange.

What would help anaerobic digestion in Ontario? It has to be classified, really, as a source of renewable energy. As things currently stand, it's not classified as that. A renewable portfolio standard would help create a demand for this kind of technology. The Ontario government is a significant energy purchaser. If the Ontario government were to lead by example and say, "We're going to purchase X per cent green energy in our portfolio," that would certainly create a demand for these kinds of facilities. And a favourable financial climate is required, something like production tax credits, like they have in the US, to narrow the gap between traditional energy and something new like anaerobic digestion.

That's the end of my presentation. The conclusions are: anaerobic digestion of waste is a renewable energy source—no question; every year in Ontario we produce lots of stuff to feed these facilities—it solves lots of environmental problems including a lot of problems associated with landfills and the Ontario government can take a real leadership role in promoting policies etc that favour this technology. Thank you very much for your time.

**The Vice-Chair:** Once again we see some overlap in the recommendations that are coming our way which will help in the writing of the report. We have about two and a half minutes per caucus. It is the government's turn to start.

**Mr Hastings:** Ms Kelleher, when you visited Switzerland, did you talk to any of the financial people as to what kind of financial regime was put in place to make anaerobic what seems to be the national solution for their energy and environmental challenges?

**Ms Kelleher:** I didn't really talk to financial people. I did talk to the private sector companies who build and finance these facilities themselves, and they simply said that incineration is so expensive there that if they pick a price point for anaerobic digestion that makes them cost-competitive with incineration, so 25% less, with all the other sources of revenue they get, particularly from energy sales, they can make a good business out of this.

**Mr Hastings:** Two hours ago we had a presentation from a group in Thunder Bay advocating that we look at the use and applications of peat.

**Ms Kelleher:** I listened to that presentation.

**Mr Hastings:** Do you see any linkage between the potential exploitation of that situation specifically for horticultural applications and the anaerobic application? Would it work, in your estimation?

**Ms Kelleher:** The way anaerobic works is, if you've got some fresh organic material like food or manure—animal manure is another good example or any waste from food processing—it's very expensive to treat these aerobically with oxygen, because you just need too much air, and anaerobic works beautifully for these materials. Peat is actually a dead material. It's got no life left in it, which is why it's a good fuel. So I think peat, anaerobic digestion, all these different things, can be different parts of the portfolio that gives you a nice broad range of energy options. But there certainly is a niche for

anaerobic digestion. It has been used for a hundred years in sewage treatment plants here. So it's a very old, proven technology. It's just that in the last few years people have begun to use it for residential waste in a way that they didn't before.

**Mr Parsons:** I had a great question, but you answered it just before I asked it. This same process then would apply to sewage treatment plants?

**Ms Kelleher:** Absolutely. For all of the sludges from particularly bigger sewage treatment plants. In some of the really small ones around Ontario it's easier to stabilize sludges with a different process. But anything beyond certainly a million gallons a day, the economics of anaerobic digestion, there's no question that's what they all do.

**Mr Parsons:** Any concern about what's in the gas, what's in the sewage treatment plant? There's no control over what goes into it.

**Ms Kelleher:** That's always a concern. It's really controlled by the certificate of approval for an air emission from the sewage treatment plant, because sewage treatment plants that have digesters produce the gas, burn it and run engines for their own in-plant energy needs.

**Mr Parsons:** They may think they know what's going into the system coming to them, but—

**Ms Kelleher:** Sure, but you capture that by the government regulating stringently enough the air emissions from the facility.

**Mr Bradley:** I heard you mention the potential for manure. One of the problems that all provinces are looking at now is with manure from what we would call almost industrial farms or highly intensive cattle farms, and what to do with it and the potential it has for contaminating water supplies.

What application, specifically, would you see with your process with those kinds of operations, the factory farms?

**Ms Kelleher:** Totally natural fit. The previous speaker said that farms have their own on-site energy needs. The US Department of Energy right now is very strongly supporting on-farm digester applications to produce enough power to meet the farm needs. I don't have the numbers with me, but they've looked at what the payback is and they will top up the cost to a point where the farmer gets a reasonable payback on his investment.

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**Mr Bradley:** I think all members of the committee would be interested in that because that's one of the potentials for solving what's becoming an increasingly challenging problem for governments everywhere, where we have not as many of the old, small farm operations but now very large operations, almost industrial operations, and we know how much manure they produce. If that can be dealt with in an appropriate fashion, this would be wonderful.

**Ms Kelleher:** While digestion is really effective at it, it doesn't really alter the nutrient balance, because the nitrogen and phosphorus going in are the nitrogen and phosphorus going out. What it does is, it totally controls



odours from these farms, which are now a huge problem, especially for the neighbours. That's what they're used for in Europe: Denmark, Holland. They use the digesters to treat the manures to control the odours, and the side benefit is that they get a substantial amount of energy back which is used on the farm or else is tapped into the grid.

**Ms Churley:** I'm really pleased that you came here today with this presentation. By coincidence, I brought up the anaerobic digestion course this morning when we were talking about what kinds of alternative energy and fuel we should be looking at here. I was arguing that we shouldn't be looking at the old burning of garbage, despite the latest technology. I don't think most people here even heard of it until we had the Adams mine debate and all of a sudden everybody started to become interested in that issue. I toured a pilot project that was very interesting to see.

My question then is, given the problem with siting landfill—I expect the same problem would happen if a government chose to build an energy-from-waste plant, the old traditional style of just burning it; they'd have the same problem—what do you propose we do to kick-start this as a viable option to deal with our solid waste? Right now we know it exists, we can get it going and it would make a huge difference to the garbage problem, but nothing's happening beyond a few pilot projects.

**Ms Kelleher:** I think it all boils down to money and whether it's cost-competitive. Particularly with landfill tip fees at \$50, \$55 a tonne, people will absolutely go for the digestion option as opposed to landfill or whatever else. So it's all a question of money, and to make something economically viable, you have to put the different pieces of the puzzle together so that the money makes sense. Right now it probably costs a bit more than landfill. Some municipalities are certainly looking at it and saying, "We don't mind paying a few dollars more a tonne. This looks better than landfill." So it's a question of putting the package together so that it costs the same or a little bit less than landfill, and then everyone will build these facilities.

**Ms Churley:** In fact, as I understand it, the biggest problem with landfill is the organics that go into it, which of course cause all kinds of—

**Ms Kelleher:** Yes, the organics cause all the problems. They cause the gas production, which is one of the risks of landfill. The anaerobic digestion process that happens in landfills creates an acidic environment where the metals are precipitated and they end up in the leachate. So most of your environmental problems around landfills are caused by the organics. If you get the organics out, you solve most of your problems. That's what they're doing in Europe with the EU Landfill Directive. They're saying that 75% of the organics have to be out of landfills by about the year 2008.

**Ms Churley:** They're moving away from old-style garbage incineration, are they not?

**Ms Kelleher:** Yes. It's publicly unacceptable in virtually all European countries now.

**Ms Churley:** OK. I rest my case.

**The Vice-Chair:** Thank you very much for your presentation.

## ENBRIDGE

**The Vice-Chair:** Our next presentation is from a company we've heard quite a lot about in the last three days, Enbridge. Welcome.

**Ms Marion Fraser:** You all have handouts, right?

**The Vice-Chair:** Yes, we do. Welcome, and please state your name for Hansard.

**Ms Fraser:** I'm Marion Fraser. I'm the director of marketing for Enbridge Consumers Gas. I'm here today representing Enbridge as a whole. I have 22 years' experience in the energy industry, particularly the energy efficiency and environmental side of energy. I've been with Enbridge Consumers Gas for three years.

What I'd like to do today, the purpose today, is to explain why we're so pleased to have this opportunity to present to this important and timely committee. I congratulate the government, the members of the opposition and the rest of the members of the House in terms of setting this committee up because it is so timely as we look toward market opening. I also congratulate you on sitting these long days in the twilight of summer. It's beautiful out there today and yesterday was even better.

What I'd also like to do is provide a slightly different vision of the role of distributed energy in our energy future. I say "distributed energy" because I want to differentiate it to some degree from a lot of what you've heard about in the past week in terms of distributed generation. I think distributed generation is part of that but energy is a much broader alternative for us to look at.

Finally, I'll provide some recommendations for your consideration.

Just a few little words about Enbridge in terms of why we're here: we're not just a natural gas utility. I know you've been asking a lot of questions about natural gas, but Enbridge is really in the overall energy distribution and services business. We do have traditional energy supply businesses: the world's longest liquids pipeline that stretches across Canada; Canada's largest and oldest natural gas distribution company, formerly known as the Consumers' Gas Co, with in excess of 150 years of operations; and Cornwall Electric.

We are also very active in terms of energy efficiency programs and services. I guess you've already heard a little bit about our demand-side management programs and the success we've had there since 1995, when we first started doing energy efficiency programs. In fact, we've saved in excess of 250 million cubic metres of gas, which is enough to heat 100,000 homes in Ontario. So it's pretty substantial, and we're moving forward to continue those programs.

It's partly due to our interest in the environment, but also as a result of the innovative regulatory framework that has been put together based on a lot of work from the environmental groups in terms of participating in the

Ontario Energy Board, as well as other interveners and our own company, in terms of working out a way we can make this work.

In addition, we have affiliates that provide competitive energy services to business and homes, helping them make their homes more energy-efficient, helping them make their buildings and their businesses run better.

In addition, we're also very interested in alternative energy technologies. We have a very active natural gas vehicle program, encouraging particularly in terms of the conversion of major fleets. Enbridge has a \$25-million investment in fuel cells, and one of the handouts I've circulated to you is probably the best two pages on fuel cells that I've ever seen, put out by David Suzuki and the Pembina Institute. I've just provided that for your own information.

We are also a partner with Suncor in their \$20-million wind power project in Saskatchewan, which will generate about 11 megawatts of power when it's completed and represent about 10% of the wind power production in Canada.

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We're also very proud of our environmental leadership and our record, and that's why I brought this along for you. What we tend to do on the environmental side is work in partnership with other players in the marketplace who have similar objectives. For instance, we were a founding sponsor of the Toronto smog summit. We've been working with the city of Toronto for quite some time in terms of the Better Buildings Partnership, helping to finance and encourage the retrofit of a lot of the city's buildings, not just those that are city-owned but also ones that are just located in the city. We're a member of the Clean Air Renewable Energy Coalition, which I believe is going to be talking to you. We're a major funder of the Canadian Energy Efficiency Alliance's virtual energy centre, which is on-line now and has a wealth of information on that.

We have been honoured with some environmental awards, some of which I have listed there. Some of the comments you've heard in the past two days I think speak well of these kinds of things. Pollution Probe was nice enough to recognize me last fall at their annual dinner. They gave me a special award and named me the queen of energy efficiency, so I'm kind of thrilled with that.

I want to talk a bit about what the energy future is all about. Conservation is clearly an important part of that, but it's not the only part. As I said earlier, I'm not here to suggest that we should stop using electricity and only use gas, or make any other fuel-specific statements. I see gas and electricity as being complementary goods in terms of where on the continuum, from a very large central power plant such as Lakeview to a fuel cell, not just in the basement but maybe a fuel cell right in an appliance. You can convert gas to electricity to do the kinds of incredible things that electricity can do.

Our energy future will not be like it was before. We're going to see substantial changes from a centrally driven, centrally planned kind of energy future to something that

is much more robust, much more totally distributed. We can't think of our energy future just in terms of supply. Supply and demand all become very integrated in the future. People will be able to generate electricity on their side of, say, a gas meter. So we're looking at all of these different things. Appliances themselves will become smart appliances and know when to turn themselves on and off, depending on the price of electricity coming through the grid and things like that.

We've taken a very broad definition for distributed energy. We think it's an appliance or technology that generates or delivers energy close to the sites where energy is used. It may be enough for a single home, a neighbourhood, a commercial building or group of buildings, an industrial plant or larger complexes. The potential exists to supplement distributed energy with imports or exports to the electrical grid to provide an increased flexibility and diversity to the whole energy picture.

If you really want to think about this in terms of a metaphor, distributed energy is to centralized generation what the Internet is to the library. A library was something that had to be organized in a certain fashion, had to operate in a certain way and was linked to one large building, whereas the Internet is ubiquitous, has access and creates a whole different way of thinking about it. That's what distributed energy is going to do for us. There is not one best way in the future; it's going to be a whole series of improved solutions.

The issue here is to create a market environment that allows these solutions to come together and work together. It includes fuel cells; microturbine; combined energy cycle plants; cogeneration; trigeneration, where you have cooling, heating and power; district energy; neighbourhood energy; energy from waste; solar; wind; geothermal; heat pumps; energy storage and so on.

We see this as having a great value to consumers. In fact, it's this kind of distributed energy approach that's really going to provide the true competition that will bring down, perhaps not energy rates but energy bills, and that's much more important. It will provide flexibility; it will provide choice and it will provide environmental benefits.

If you take a large power plant like those proposed by Sithe, it's really no different than a large power plant such as Lakeview. But if some of those distributed energy options are within the customer's control or in a neighbourhood's control, they can turn equipment on and off, they can switch from one fuel source to another, depending on the price signals, and that will enable the competitive market to work a lot better. As a result, it will bring down bills and enable customers to make a choice. In actual fact, customers don't want molecules or electrons; they want hot showers and cold beer. Having tried to sell energy efficiency for a long time, I know that's all they're really interested in. If they can do it for less, great.

I've given you a bit of a timeline in terms of how we at Enbridge see distributed energy markets coming into play, but we really do see some opportunities for the



government of Ontario to provide assistance, leadership and direction so we can ensure that Ontario's energy future includes the environmental and economic benefits of distributed energy.

Some market rules and some of the regulations—we need to make sure they support distributed energy, such as exemption from some of the debt retirement surcharges and so on, and remove some of the grid protection policies. To some degree I think we're in the midst of trying to create an electricity market that imitates the way Ontario Hydro used to work when it was a fully bundled electricity supplier and made very centralized command-and-control decisions.

I think we need to make sure our rules are providing this opportunity for the diversity inherent in energy efficiency and in distributed energy.

We need fair and flexible emissions reduction trading systems that reflect a full life cycle impact of energy, not just point of use. I believe some of my colleagues from Union Gas talked about that yesterday.

We need financial incentives like the PST rebate for natural gas vehicles. That has been a big support to natural gas vehicles and fleet purchases and so on.

We need support for technology research and development.

I think our record with respect to DSM demonstrates that it's important that all energy distribution companies, including district energy, be charged with the responsibility of helping customers make the best use and get the best value for their energy dollars. I know Mr Laughren was here from the OEB, talking about how they were looking at including some DSM, and for the electric utilities as well. It makes good sense, makes for good customer service, and gives good financial value.

Finally, I suggest continuing and maybe even strengthening some lead-by-example kinds of things. We've seen some government building retrofits. I think there are still opportunities for more: natural gas vehicles for government fleets, for example. We've worked with the city of Toronto to create a better transportation partnership which provides innovative financing so that they can accelerate their purchase of fleets of natural gas vehicles, which create tremendous savings, particularly for high use. Similarly, we've worked with the city on taxi reform to get many of the city's taxis converted to natural gas as well, with economic and environmental benefits right across the board. There are things like procurement policies to make sure that, whether it's purchasing power with some green aspects to it or whether it's purchasing other equipment, some of these things, like natural gas vehicles, are considered.

Finally, I think technology demonstrations provide an opportunity to provide increased comfort with the development of new technology.

That's my presentation. I would like to answer any questions you might have.

1540

**The Vice-Chair:** We have about a minute and a half per caucus. Given that the official opposition is not represented here, I'll let the PCs go first.

**Mr Hastings:** Thanks for coming in and presenting more than a corporate perspective. I see in the book you've distributed to us that you are establishing a better relationship with aboriginal peoples. I'm wondering if you could flesh out a little more as to how you see a connect between aboriginal economic development and wind energy or solar in northern Ontario. It could be across the province but primarily in the north for economic development.

My second question is, do you believe the Ontario Energy Board should be tasked more urgently with the demand side management situation? We had a utility in here from Collingwood—it was actually in London the other day—and they were very concerned that they are going to lose a lot of their hot water customers if the energy board doesn't direct and be involved more in the decision-making for setting rates which take into consideration off-peak hours of energy.

**Ms Fraser:** In terms of our efforts with the aboriginal people, we're certainly working with them cooperatively to develop approaches and policies and so on. But yes, I think some of the wind and other off-grid things would be very important to northern Ontario and will provide some—basically, flying in diesel fuel is very costly, including environmentally, so I think there are areas there that could be very important. Also, in terms of the potential, community energy is of great value because their culture tends to promote those sorts of communities. So working along those lines would be of value as well.

**Mrs Bountrogianni:** Thank you for your presentation. We've heard a lot about your company in the last three days. You've obviously won the trust of your consumers. Again, based on what we were speaking about earlier—I saw you were here—when we were talking about how difficult it is to change, how did you do it? What was your program?

**Ms Fraser:** As the previous speaker said, to some degree it does take money. Unlike in my previous incarnation when I worked for Ontario Hydro, where our incentives were very large, we've used incentives very sparingly. But it's almost like the flashing blue light at Kmart; it gets people's attention and then they do something with it. We've blended savings programs. We have a number of contractors across our franchise area who, when they are out doing work, will add an energy efficiency package to what they are doing. So we're piggybacking and essentially helping to grow the pie for energy efficiency and energy-efficient work.

We've also recognized the significant advantages to focusing, with some of our major customers—for example, we started working with some of the greenhouses down in Niagara to help them reduce their energy costs. This year I think \$14 million, which is probably about 20% of our savings, will come just from the greenhouses in Niagara—quite substantial projects. So once they see the value in it—

**The Chair:** Thank you very much. Ms Churley.

**Ms Churley:** I'm really interested in energy conservation and efficiency. I think that's got to be the

number one priority—set the table with that—and then changes in regulation, and I suppose financial incentives and instruments. Because we're called energy hogs here in Ontario—in Canada, as you know, we waste so much—what kinds of things do you think we should be doing, you and the rest of us, over time to bring more conservation programs in the whole sphere of alternatives?

**Ms Fraser:** The energy distribution companies, I think, represent a very important electric end gas to make sure that the innovative regime that we've set up can work for all of them. So I think that's part and parcel of it.

There are areas, particularly in new building design, that are still a tough nut to crack. You can go into a brand-new building and do an energy performance retrofit and get savings, which is just ridiculous. I think there are some areas there in terms of building code energy efficiency still in the building code in Ontario, which is good, but we need even more and we need more regulation. The building code inspectors, a lot of them, don't really know what it is that they're looking for, so I think there are a lot more areas there that can do something.

**The Chair:** The time's run out. We appreciate your coming and presenting and I believe you're the first queen who's presented to this committee.

**Ms Fraser:** I left my crown at home.

#### CLEAN AIR RENEWABLE ENERGY COALITION

**The Chair:** Our next presentation is from the Clean Air Renewable Energy Coalition, CARE, Keith Stewart and Helen Howes. Would you state your names for Hansard.

**Ms Helen Howes:** My name is Helen Howes. Although I work for Ontario Power Generation, the reason I'm here is that we are a member of the Clean Air Renewable Energy Coalition, CARE. Keith, do you want to introduce yourself?

**Mr Keith Stewart:** Keith Stewart. I work for the Toronto Environmental Alliance, but we also, along with a mix of other environmental groups and industry and municipalities, are a member of the Clean Air Renewable Energy Coalition.

**Ms Howes:** The purpose of our presentation today is to share with you some of our thinking among the coalition members about ways to incent green power across Canada, and we'll give you at least some thoughts to think about as to what we could do in the province of Ontario. I'm going to begin by introducing who the CARE Coalition is and I'm going to be turning it over to Keith for some more specifics.

It was formed in the fall of 2000. The major drivers behind the coalition were Suncor Energy and Pembina Institute out of Calgary. There are, however, 17 NGO and business members. The Ontario members are noted here. They are Dofasco, Friends of the Earth, Ontario

Power Generation, Toronto Environmental Alliance, Toronto Hydro and Pollution Probe. I think over the last day or so you have probably heard support for the CARE Coalition from both Toronto Hydro and Pollution Probe.

The purpose of this coalition is really to kick-start renewable energy technology in Canada. We have given you two publications. One is a two-pager that describes very briefly what the coalition is about. The second one is probably of more interest because it gives an overview of what other countries are doing in the area of green power and it is pretty clear that Canada is lagging behind other countries in this area.

Our focus is mainly the federal government. We wanted to focus in two areas: one, to increase the demands through a consumer green energy credit. The other area is to increase the supply, and there are a number of mechanisms that we have highlighted. There could be production tax credits, there could be investment tax credits, there could be a Canadian renewable conservation expense, expansion of the activities that are currently eligible for that credit.

What we are proposing as a coalition is really an interim step until, as we have said, a greenhouse gas domestic trading system is available in Canada. So this is really to bridge the gap, because we believe that some of the advantages of green power will be realized through their contribution to offsetting or replacing Canada's CO<sub>2</sub> demands.

This is where I turn it over to you.

1550

**Mr Stewart:** The CARE Coalition has been focusing on federal tax changes and it's been a national coalition, but we began discussions on appropriate provincial measures. Of course, the provinces have primary regulatory responsibility for the electricity sector. So what we're going to talk about today really is a result of some initial discussions and we'd probably like to come back to you later, once we've had a chance to flesh these out a bit more in the fall.

But similar to what we're asking for at the federal level, we think we're going to need both push mechanisms and market pull mechanisms, so things on the production side and on the consumer side.

One of the mechanisms that you've already heard a lot about, I know, is the renewable portfolio standard, which we would see as a very important complement to some of the tax changes which are being proposed. We've also looked at other mechanisms such as net metering. There are things on transmission rules which vary from province to province, and provincial tax rules. There's general agreement on having government procurement as part of helping kick-start green power and the need for increased consumer awareness. There's going to be a role for government in this, whether it's labeling or certification.

We've talked about the consumer tax credit. Part of the reason we're looking for a consumer tax credit is because that will really help with public awareness-raising. I think it's going to get a lot more people inter-



ested in it in the sense that they're going to see that they can get something from it for themselves.

There's also going to be an important role in this area for non-governmental actors to promote consumer awareness and green power, but there are a number of things which can be done by the provincial government and I guess you've already heard a lot of them.

We want to highlight a little bit about some places that have done some things. The one I'm going to speak about here is Texas. It might be surprising but, under George Bush Texas developed the strongest regulatory support for renewable power, pretty much, in the United States. Part of what they did was they learned from other jurisdictions. Texas has one of the best renewable portfolio standard laws. They're going to shortly jump past California as the lead in renewable energy generation in the US. The renewable portfolio standard they brought in was reviewed by the independent assessors as ambitious but achievable. The government did polling prior to restructuring the electricity market which showed very strong support from the public for renewable energy and the government determined that the RPS was the most cost-effective way of creating the larger renewable energy market desired by consumers. They developed a fairly well-crafted rule, which is universal, stimulates new investment, provides flexibility in meeting the requirements and actually has penalties for not meeting them.

They've also brought in a series of other tax incentives. In the US there's a federal tax incentive, a wind energy production tax credit. They also leveled out some of the obstacles within the transmission system to renewable power in terms of things like embedded generation. Actually, on that part I don't know the details; I'd have to go down and look at their law. And they have some state tax credits which are supporting renewables.

In terms of things like line extensions, where a remote site is going to have to be put in—basically a line has to be run a long distance to some site—the company that would do that is required by law to make the would-be purchaser aware of all the remote renewable technologies available so that that line doesn't have to be put in. That might be particularly interesting for some applications here in Ontario, where we do have a series of remote sites. And they have a net metering law.

There's this overall package which was adopted to promote renewables, and the overall targets are quite good. They're actually overachieving so far, I believe, and they're expected to jump past California maybe next year in terms of overall production of renewables.

**Ms Howes:** I think the point that Keith and I want to make is, as a coalition, we haven't landed on whether renewable portfolio standards is the right answer or a tax credit or net metering etc. We still need to do some work as a coalition. The reason we wanted to illustrate these two cases is just to show you the range of mechanisms that are often put in place in various states in order to incent green power. Some of those may work here, some

of them may not work here. Keith and I are early days, certainly, in this research and Keith's offered to come back when we've done a more fulsome review to give you a sense of how well some of these mechanisms work. It's an offer that we'll put on the table.

Massachusetts is an interesting state as well because it illustrates the number of mechanisms that were put in place. They didn't just rely on renewable portfolio standards etc. Just for information, Massachusetts's electricity sector was restructured in 1997, so they've got a couple of years' worth of experience. They had a number of tax incentives. If you purchased renewable technology equipment you were exempt from the 5% sales tax. There was an exemption on your property tax if you claimed solar or wind etc for your own personal use. There were also some corporate income taxes that were available to corporations if they used renewable technologies for space heating or water heating. There was a personal tax credit as well, so a variety of tax incentives.

They also introduced a systems benefit charge. Typically systems benefit charges are used for public awareness programs and that's certainly what this program will do as well. It's early days. I think they are looking at something like \$150 million over a five-year period for the systems benefit charge. It is focused on education and awareness.

They've also tacked on net metering and that allows those who have some of the renewable technologies installed to sell the excess back into the grid. They too have a renewable portfolio standard. I think it is perhaps less aggressive than Texas, but I think the proof will be in how much new renewables they put on the system. They were looking for a 1% increase per year and then gearing up to 1.5% per year after 2003. So they have a five-year target for themselves. They also have disclosure rules to protect their citizens as they're buying green power so that they are aware of the emissions that are produced and what the generation mix is. There is some extensive outreach program across the state, because I think we all agree that awareness and understanding is a key piece of this.

So we offer Texas and Massachusetts just as examples. I don't think we're endorsing either Texas or Massachusetts. I think we can come up with our own solutions in Ontario. But it's just illustrative of the kinds of things that can happen in other jurisdictions.

That's the end of our presentation. Keith, I'm sure, will take questions to the ability that we're able to answer.

**The Chair:** Thank you very much. We have maybe a minute and a half per caucus. We appreciate particularly the last two items you brought forward. They're very helpful. The recommendations being brought forward are very helpful for us. There are beginning to be some common denominators here. We'll start with the official opposition.

**Mr Bradley:** First of all, I look at the Texas and Massachusetts examples. Would it be safe to say that a hybrid of Texas and Massachusetts, where you could

cherry-pick from both of them what is best, both of them would be perhaps what we could best implement in Ontario? Is that fair to come to that conclusion, and perhaps some other jurisdictions which have good initiatives?

**Mr Stewart:** My opinion would be to take a look at some of the best and most effective measures which have been adopted in other jurisdictions and use those to develop an Ontario package. Particularly in Europe and in a number of US states now there are some systems that have been running for a while. We should look at those and see how we can make similar types of things work here in Ontario.

**Ms Howes:** As a quick point, we do have a good deal of research that gives you examples state by state of what's been implemented. What we can't tell you is how effective they are. But I would be more than willing to leave it for your research person to see the material. It's pretty weighty.

1600

**Ms Churley:** I think it's wonderful that you've pulled this coalition together. This is going to be critical information for the committee, because I think we would all agree that in order to get these renewables off the ground we have to have some mechanisms to help that happen, and there are so many options. I believe that everybody is willing to look at those options and recommend them to the government so that we can get moving on this. Are you looking at European options as well, what they're doing there? That's my first question. The second question: when do you think you can give us definitive recommendations on these?

**Mr Stewart:** I know that some of the people within the coalition have looked at it. It's one of these things where everyone is throwing in information that they have.

**Ms Churley:** So there's a lot of information and that's part of the problem?

**Mr Stewart:** There's a lot of information. I think we can try and sift through some of that and send the best sources on to you.

**Ms Howes:** We agreed as a group that by the end of September we would have pulled together the information on renewable portfolio standards as well as the supporting mechanisms. The group is very familiar with Denmark and Germany, so you're going to see a lot of Danish and German experience in addition to American experience. We're targeting the end of September, so where we are at the end of September, we'll pass it on to you.

**Mr O'Toole:** It's good to see you, Helen. Is the windmill working today?

**Ms Howes:** It's spinning a little better than yesterday.

**Mr O'Toole:** Wind generator, actually.

**Ms Howes:** Wind turbine, yes.

**Mr Bradley:** The photo-op.

**Mr O'Toole:** My contribution was the photo-op, I suppose. It's an important demonstration by OPG, and I commend you on the alliance.

On the second page here, the purpose of the CARE coalition; it seems like conflicting kinds of focuses: "increase demand through a consumer green energy credit." The management of demand is very important to keep that down. The consumer, the puller on this whole system, has to have a serious responsibility. That's something I'd like you to comment on. Increasing supply is another one. I'm wondering—on the generation side, we continually want to build more capacity, which enhances the wasteful resource. We're consumers, as has been said many times. There too I would like you to clarify for me a bit.

On the two examples you've given, Massachusetts and Texas, I think the tax incentives—it was good to hear Ms Churley talk about supporting reducing taxes, and it's the first time I've heard that.

**The Chair:** Maybe we can give them a chance to answer; we're running out of time.

*Interjection.*

**Mr O'Toole:** Not really.

**Ms Howes:** Except it's our time, so let us answer the question.

**Mr O'Toole:** That's right—the increased demand and increased supply.

**The Chair:** We're looking forward to your answer.

**Ms Howes:** I think our sense was that we know that energy efficiency and energy conservation have got to be part of the solution as well. This was really focusing on two aspects of green power. We could subsidize the industry, which is probably a good thing, but we wanted to sunset it so that's why it's a three-year kind of program at this point. I think the other piece of it here is that we want consumers to buy it so that it's not just a subsidy for an industry, that we truly have the customer poll piece of it. I think we're quite supportive of energy efficiency and conservation.

**Mr Stewart:** On the increasing demand side, what we're also looking to is to displace highly polluting sources with this new cleaner source.

**The Chair:** We've run out of time. Thank you very much. We really appreciate your coming forward. You have some excellent examples for us to get our teeth into.

**Mr Hastings:** Can we ask the researcher as well as the clean air group to look at the carbon-based flow-through share, which is the same thing as your renewable expense allowance in your overhead, and the efficiencies of tax credits generally?

**The Chair:** OK, a fair question.

#### SUPER BLUE BOX RECYCLING CORP

**The Chair:** The next presenter is from the Super Blue Box Recycling Corp, Matt Larmour, project manager. There's a total of 20 minutes for presentation and questions and answers from the respective caucuses.

**Mr Matt Larmour:** My name is Matt Larmour. I'm a project manager with Super Blue Box Recycling Corp and Eastern Power. Eastern Power is the parent company of Super Blue Box Recycling Corp, SUBBOR. My



colleague here is Gregory Vogt, who is the president of both of these companies. The clerk has distributed some information that I'm going to read from.

Chairman and committee members, I would like to thank you for hearing our representations to you about the ability of Eastern Power to generate renewable green electricity through anaerobic digestion of municipal solid waste using the patented technology developed by Eastern Power/SUBBOR and demonstrated in Ontario.

Eastern Power is a private Ontario company that has developed, designed, constructed and now operates electricity generating stations at Toronto's municipal waste landfill sites at Keele Valley and Pickering. These power stations convert the gas given off from the waste material into 65 megawatts of electricity continuously and make Eastern Power a world leader in this business.

Eastern Power has developed SUBBOR technology as a result of experience at landfill sites. SUBBOR technology avoids the need to landfill waste materials by providing large concrete tanks wherein the waste is deposited to decompose through anaerobic digestion of the organic component. The waste decomposition takes place under specific controlled conditions and produces biogas. The efficiency of biogas production and conversion to electricity is very high, and SUBBOR holds worldwide patents on the methods used to accomplish this. Previous presenters have referred to processes in Europe that are very similar to this but not as good.

The SUBBOR process is being demonstrated together with the city of Guelph, Ontario, where the company has built a \$30-million pilot plant designed to process 25,000 tonnes per year of MSW, with expansion to 100,000 tonnes per year of MSW. This plant has an installed capacity to generate 4.5 megawatts of electricity continuously. This SUBBOR plant has been developed by Eastern Power Ltd in partnership with Industry Canada through the TPC program and Environment Canada's TEAM initiative to reduce greenhouse gases.

You may be interested to know that a single tonne of municipal solid waste landfilled emits almost three tonnes of greenhouse gas equivalent. The SUBBOR process, therefore, has an extremely high potential to reduce greenhouse gas emissions by avoiding landfilling municipal waste at the same time as providing green electricity. In fact, we have calculated that if Canada's municipalities with a population of over 100,000 people were to utilize the SUBBOR approach, there would be a reduction in greenhouse gas emissions from landfill equivalent to 70 million tonnes of CO<sub>2</sub> each year, which would achieve 50% of Canada's commitment at Kyoto while producing as much electricity as a Pickering generating unit.

For the record, I would like to make certain that you understand that SUBBOR technology does not entail burning waste. SUBBOR carries Eco-Logo certification. The SUBBOR process is non-polluting and the electricity is generated using renewable biogas that is a clean fuel comparable to natural gas. I think you've heard all about that from previous presenters.

SUBBOR plants are non-polluting and are suitable to be sited, for instance, in urban areas where municipal transfer stations would otherwise be needed. Such a plant would generate seven megawatts of green electricity and provide heat energy to the community, if required.

I would like to point out that SUBBOR anaerobic digesters can also safely digest organic waste materials from other sources such as sewage plants and paper mills. In many instances these wastes are currently land applied.

The point is that electricity production using the SUBBOR process can be beneficial in the community and not problematic. A community utilizing SUBBOR technology will achieve a minimum waste-recycling rate of 65% through production of electricity alone, without including the additional material recycling potential of SUBBOR.

Eastern Power is an experienced generator of green electricity in Ontario and will be supplying the new market when it is opened from its existing landfill gas-fuelled power stations. Each of Eastern Power's SUBBOR electrical generators will be modest compared with other major generators. I'm talking about Enron and OPGI, people like that.

#### 1610

It is important that the new market organizes to avoid discouraging small green generation because of complexity, licensing, dispatching, connection and other overheads associated with market participation. It's a nightmare. We recommend that green electricity like SUBBOR electricity be provided encouragement in keeping with the desire of the community at large to embrace it. Because SUBBOR has conducted surveys and open house presentations in the community of its technologies, we have learned that 90% and more of residents in every community support this approach.

We recommend establishing a green power category in the electricity market, supported by measures such as recognition in the market rules, required portfolio green standard and a method to provide the best price to the generator.

SUBBOR technology is a platform technology. Eastern Power and SUBBOR have assembled a group of scientific staff and developed expertise here in Ontario and Toronto that's second to none in the world. We don't need to import these technologies from elsewhere. This expertise is resident here in Ontario, working closely with the University of Guelph, the University of Ottawa, the University of Toronto and other universities in North America to continue developing anaerobic digestion applications to biomass elsewhere.

That's the end of my presentation. I'm open to questions.

**The Chair:** Thank you very much. We have approximately two minutes per caucus, beginning with Ms Churley.

**Ms Churley:** Thank you very much for your presentation. You're the second deputation today on this issue. I believe this is the plant that the leader of the New

Democratic Party, Howard Hampton, went to tour and raised it in the Legislature as an alternative to Adams mine. The whole issue around getting the organics out of the waste stream solves a lot of the problems to begin with, because it's the organics that cause the big problems in the landfill. So I'm really glad that you're here promoting this today. I understand that there are people from all over the world coming to look at your plant, it's so good.

My question to you: you don't have a lot of time now, but you said it's a nightmare getting through, I suppose, the red tape and processes. I would recommend that we put this on our list of alternatives. I believe we would all agree with that. What's the first thing you'd ask us to recommend to the government to help you get through the roadblocks?

**Mr Larmour:** I think the roadblocks I refer to are in some cases very necessary protocols that are in place to control the production of electricity and its introduction to the market. However, it gets complex for a very small company. You know, if you're producing 20,000 megawatts a year, you can carry a very large overhead. But if you're a small company that's producing a lot less than that, the overhead on a per kilowatt basis becomes too much.

There are proposals in the market, for instance, to allow producers below one megawatt not to have to follow dispatch regulations etc. These are the kinds of things that we're asking be looked at and applied to green power.

**Mr O'Toole:** Thank you very much. I'm quite interested in this. As you've mentioned, one of the demonstrations is at Pickering, and I didn't realize you were the operator there, but I am familiar with that site.

You mentioned on page 2 that SUBBOR anaerobic digesters are used in sewage plants and paper mills. As you said, these are land-applied, so it's a big issue in my riding of Durham. I'm wondering, have you approached, or do you have current applications anywhere in Ontario where—see, they're actually planning now to either burn the sewage sludge or this paper waste as landfill, which ends up with all the material somewhere in the water table eventually. Have you got any applications where you're actually using this process to deal with paper sludge? I'm thinking specifically of Atlantic Packaging.

**Mr Gregory Vogt:** Maybe I'll answer that question. We've been working very closely with universities in terms of developing the technology specifically in these areas, but in terms of applications, right now none of the paper mills or the people who are making sewage sludge have seen much need to go to a sophisticated technology. They seem to be quite happy with the land application and the landfilling. Mind you, the environmental implications of that have been quite serious, but we have not seen a turnaround in the industry where people are saying, "We need to do this." Some people have sort of kicked the tires a little bit and we've had some discussions with them.

**Mr O'Toole:** Is it going on somewhere in the world today?

**Mr Vogt:** Anaerobic digestion of these things?

**Mr O'Toole:** Sewage sludge and paper sludge.

**Mr Vogt:** Actually, in every sewage treatment plant some form of anaerobic digestion takes place, but the final sludges tend not to be fully digested, and that tends to be the problem. Our technology does that. So, actually, no, it's not going on anywhere in the world. We hold the patents on this technology.

**Mr Larmour:** Just to embellish what Mr Vogt said, in our laboratories we have run paper sludge and sewage sludge through our digesters to prove that the digesters will handle that kind of material. We have the data, we can design the equipment, we can do the job, and we are speaking to one paper company in particular that sees the benefit of doing this in eastern Ontario and is talking to us about following up with that. He is most interested in the cogeneration aspect.

**Mr O'Toole:** That's right. Generate the plant from methane gas or whatever it is you produce to power their own plant.

**Mr Larmour:** That's right.

**Mrs Bountrogianni:** Thank you for an excellent presentation.

**The Chair:** We do have a little extra time if there's another question from anyone.

**Mr Hastings:** A lot of people are presenting along the theme of what can be achieved environmentally, economically. You folks are in the everyday world of dealing with the companies and skills. I'm wondering if you have any views on what this committee needs to focus on in terms of the educational infrastructure or the skill sets that need to be developed or embellished or changed, from electrical inspectors on net metering to the training and development of people in some of these alternative fuels and your own applications. Do we need better lawyers for intellectual property registration, that sort of stuff? It's out of our field, but I'm sure we'll make some comments about our federal partner's role in this, since they were very much involved when we were in Ottawa.

**Mr Vogt:** Actually, in terms of educating the people infrastructure, we've been pleasantly surprised in that area. There's a lot of expertise in anaerobic digestion in general. There's a lot of expertise in alternative fuels in Ontario. You know, university training in these areas tends to be very well advanced. Environmental courses and whatnot are pushed very hard. So the awareness, even among the professional skill set, the lawyers you mentioned, tends to be quite high.

**Mr Hastings:** What about at the maintenance level if we get down the road and one of these industries takes off? Yours, for example.

**Mr Vogt:** Yes. Like our landfill gas business, we become world leaders in that, and we've actually found the level of qualifications of the professionals has been quite high. That has tended not to be the problem.

Getting them started: each one of our projects to date has taken about five years to go from concept to actually



getting a shovel into the ground. That seems to be just the order of the day, because there aren't broad policies which tend to push the stuff through. We've had to take municipalities to the Ontario Municipal Board with the argument that it's good for the environment, it doesn't violate your Planning Act, so why aren't we allowed to do it? They usually back down before you get to the OMB, but you've got those sorts of obstacles and people are looking at each other and saying, "We don't want to be the first person to do an environmental project."

**Mr Hastings:** It's more attitudinal than educational?

**Mr Vogt:** Exactly.

**The Chair:** Thank you very much for your presentation; it was very interesting. We appreciate your coming before us.

### BRITISH ENERGY (CANADA) LTD

**The Chair:** The next presentation is from Tony Morris, manager of business development for British Energy (Canada) Ltd. Mr Morris, please state your name for the sake of Hansard.

**Mr Tony Morris:** My name is Tony Morris. I'm the manager for British Energy (Canada) Ltd. I've spent 26 years in the electricity supply industry in the public and private sectors. I've worked in western Europe, Russia and Ukraine. I've been an adviser on electricity reform in these countries and I've spent the last four years living and working in Toronto. I'm currently responsible for our investment strategy in the whole of the Americas from our Toronto office.

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Good afternoon, and thank you for the opportunity to speak to you on this very important subject. I represent British Energy (Canada), who is a major investor into Ontario, with a long-term interest in nuclear operations through its Bruce Power partnership and also a commitment to the expansion of wind power resources through our Huron Wind joint venture with OPG-Evergreen Energy.

It is from this perspective that I wish to describe a view of the future for Ontario that removes the conflict between green and conventional energy sources and presents a rational roadmap toward a balanced energy program that can deliver reliable and environmentally beneficial electricity here in Ontario.

It is our belief that the market can deliver the lowest-cost new generation. It is our confidence in electricity markets that not only drove our initial investment into the 3,100-megawatt operational plant in the Bruce site but also to our announcement in April 2001 of our intention to restart 1,500 megawatts worth of laid-up generation at Bruce A using private sector resources.

It is confidence in the operation of the electricity market which will drive others to make similar investment decisions in Ontario, whether this is into renewable or other clean generation technologies. Witness the announcement last weekend of a renewed interest in the

construction of new, clean, natural-gas-fired generation in Sarnia.

However, total reliance on the market for new generation may not deliver an optimal solution, as the market does not at present fully capture the environmental costs associated with most forms of generation. Some form of external market signal may be necessary to secure the required outcome.

Such signals can take the form of a renewable portfolio standard, as used elsewhere, to good effect. This is often known as a pull mechanism that can take established renewable systems and allow them to migrate toward a desired goal. The other method is to use the push-type mechanism that establishes a target, provides the financial support mechanism and enables the physical, legal, planning and administrative infrastructure for continued investment.

The scale of the greenhouse gas emission problem facing Canada is quite large. It was only in May this year that the Honourable Ralph Goodale, Minister of Natural Resources Canada, noted that Canada is 195 megatonnes above its Kyoto target, and in reality this means a 25% reduction from the current level of greenhouse gas emissions.

Let me be very clear: renewables have a significant part to play, but currently they can't address the needs of large-scale generation. It would take more than 700 large, modern wind turbines of the type just newly installed at Pickering to match the capacity that is about to be brought back on-line from the partial restart of Bruce A. That's 700 wind turbines. In practice it would take the construction of two or three times as many wind turbines—that's almost 2,000 of them—to meet the annual volume of electricity that will actually be generated by a restart at Bruce A.

Let me again be very clear: the point I am making is not a recipe for inaction over renewables but actually a call to arms regarding clean generation, and a renewable portfolio standard is actually a necessary step along the way. But is the adoption of the renewable portfolio standard enough, and does Ontario need to do more if it is to take advantage of the opportunities associated with the development of a renewables industry?

Evidence from other jurisdictions suggests that it is the combination of a pull mechanism with a push toward an ambitious renewable target that would best place Ontario as a leader in positively addressing greenhouse gas emission reduction.

The province is currently benefiting from its legacy of a balanced energy program. Recent events have also shown that much hydraulic generation is capable of economic life extension and can be uprated as and when economically warranted; that some existing coal and fossil generation can be economically retrofitted to meet all environmental targets, with the exception of greenhouse gas emissions, and that some existing nuclear facilities can be economically life-extended, upgraded or repowered to meet current safety and environmental targets.

But, ultimately, refitting existing plants will become uneconomic as major civil structures, the buildings and large items of plants such as turbines and boilers, begin to age and environmental targets begin to outstrip the capability of the plants to actually be able to meet the limits.

In the medium term, investment in new electricity generation will be required. At this point it is already clear that renewables must play a significant part and challenging targets are necessary; gas and clean coal can meet all environmental targets, again excepting greenhouse gas emissions; and new nuclear can meet all environmental targets, including greenhouse gas emissions.

It is my contention that the market remains best placed to deliver the future energy needs of Ontario. However, clear signals need to be relayed that allow the dramatic expansion of renewables and prevent the domination of a single technology or a single fuel. To do otherwise would place Ontario at the mercy of price hikes, supply restrictions and, ultimately, increased greenhouse gas emissions.

Now I will return to my roadmap for the future. In considering our further investment into Ontario we have examined many scenarios, and specifically there appears to be the need for expansion of renewables. For this to occur, actions have to be taken in the short term that allow positive investment decisions to be made. Although a renewable portfolio standard is one part of this, more needs to be done to accelerate the process.

I have submitted to you in written form a discussion paper for a renewables policy for Ontario that British Energy Canada has used to assist its own thinking in this area. I would point out that this document does not contain the latest input from the European Bonn accord nor the recently announced eastern Canada greenhouse gas bilateral agreement. But please feel free to use its content.

Let me summarize. In the short term there is the need to create a distinct market for green energy, recognizing that without this it will not be able to compete with conventional generation; we need to set challenging annual growth targets for renewables; and we need to establish a renewables structure that supports positive investment decisions.

In the medium term there is the need to tighten environmental limits; to further promote clean technologies; to create a market structure that rewards clean forms of generation; and to further raise environmental awareness so as to influence demand patterns.

British Energy Canada would be delighted to further assist the committee in its future deliberations and wishes you a successful outcome. Thank you.

**The Chair:** Thank you very much for the presentation. We'll start with the government. We have about two and a half minutes per caucus.

**Mr O'Toole:** Do you have your comments in writing? I'd like a copy of them. You made a statement there that I found quite compelling, that current technology does not capture the full environmental cost. I think that's a very

important observation that has been said in different ways, but I think that summarizes it, saying that whether it's the health costs or the indirect subsidies through capital or depreciation or whatever else, there are a whole bunch of mechanisms that are indirectly subsidized. On a one-to-one comparison, it disarms wind and other sustainable sources. It's important to have someone like you.

I'm quite surprised that you, coming from British Energy, where your main importance here is basically in partnership with Bruce, have made a commitment to the wind application there. One of the two or three points you made at the end with respect to the renewable portfolio standards—we've heard that several times, and I think it's an extremely important part of the policy picture, giving green power, renewable power, a better opportunity to compete on a level playing field, if you'd like to comment in a general way. I found that what you're saying is rather pro-renewable, and traditional technologies, be they nuclear or whatever, aren't really—they're the base load. You can't put yourself out of business.

1630

**Mr Morris:** I think what we're doing is describing a situation where there are some compelling short-term actions that need to happen, and that is to promote and take a leadership position with regard to renewable technologies. I've noted all of the other presentations today that were highlighting some of the points we were raising about the complexity of the marketplace as it currently stands for the small wind generator or small biomass generator, and I think we would fully support those points. That is coming from a rather large electricity company situated out at Bruce Power. In no way are we decrying the importance of our investments in the Bruce area and of nuclear power and its continuing important role, but we also see that renewables have a vital, significant and important part to play going forward.

**Mrs Bountrogianni:** You've listed in your written submission Europe's and the USA's targets. How would you compare Canada and Ontario in how we're doing and where we should be going?

**Mr Morris:** The opportunity is with all latecomers to a marketplace, because they take a leap over where everybody else is. This, to me, is the position Ontario is in at the moment and the position Canada is in. I actually believe in an Ontario that takes control, takes a leadership position and puts the right steps and the right pieces in place that will actually then allow Canada effectively to catch up at some later point. All the evidence, all the experience is all set out there. We've tried to condense in that document something we feel will help, will be useful. But there are some compelling signposts along the way that show how you can actually leap above and leap over some of what other jurisdictions have spent the last 10 or 15 years struggling with, and you will be able to take advantage of all that very quickly.

**Mrs Bountrogianni:** Are there any examples of countries in Europe or states in the United States that



were behind, the way we are now, and have taken leaps to catch up, or attempt to?

**Mr Morris:** I think the previous speaker alluded to places like Texas, which are coming in and overtaking. There will be other jurisdictions that do exactly the same.

**Ms Churley:** It really does take community involvement and government will to make this happen, doesn't it? That's the purpose of this committee: to recommend all these good things to the government, to get these programs off the ground.

You know the Harris government is in the process of deregulating Ontario Hydro. There are some problems associated with the way the deregulation is happening—so we've been told by most of those involved in renewables. Have you taken a look at how that's unfolding, and do you have any advice on what changes could be made there?

**Mr Morris:** I think you're referring to the problems of trying to make a connection for a small, unsophisticated generator into what is a well-sophisticated, integrated system.

**Ms Churley:** And subsidized in many ways.

**Mr Morris:** Yes. I think it's actually more a technical issue. I was alluding earlier to the difficulties we have had, even as a large company, actually trying to make an interconnection to the system for the Huron wind turbine. It has not been a simple process, and I think I've identified in my written evidence that Germany actually has a lot easier system. There are provisions in the German power system that make it very easy for renewable technologies to interconnect to the system, and it is actually a very painless exercise to go through, as opposed to what we have here.

**Ms Churley:** To some extent I think that for many it feels like a giant leap of faith, because we're changing the way we've been doing business for a very long time. I think that having this kind of documentation from previous experience will help the entire committee. When we get back to the Legislature, hopefully we will have more knowledge than most, from getting these kinds of documents and depositions, which will help us move forward on this.

Thank you very much for your advice today about your experience.

**Mr Hastings:** To Mr Morris: This is something I don't think you can answer today, but you certainly brought up a signal under points 7 and 8, in my estimation. As the renewables get off the ground, whether you have a subsidy structure, an incentive structure, market-driven or some combination, there could be a challenge made by the European commission or through NAFTA. I'm wondering if we should be getting a legal opinion through our legislative counsel and research, in conjunction with your own legal counsel, because this is the first time I've seen it signalled in terms of—and it could come in the next two or three years. We could have a softwood lumber arrangement from Washington, or from the European commission actually, because they are pretty good at this sort of stuff; they want to protect their

subsidies for their farm producers in France, for example. Do I have a good read on what you're anticipating and formulating in points 7 and 8, or is it a little off?

**Mr Morris:** No. I hadn't specifically referred to that. I honestly believe that there will be eventually a bilateral answer whereby it will be agreed throughout the whole of the Americas. But I don't think that should prevent Ontario taking the first steps in trying to establish a structure that can actually assume a leadership position with regard to support for renewables involving both the push mechanisms and the pull mechanisms.

**Mr Hastings:** In that context, then, should we be very careful in how we develop both mechanisms, both sides of the equation, for a legal challenge?

**Mr Morris:** The reality is I think all of the examples are out there, and I don't think the legal challenge would potentially come when we have examples of all of the different mechanisms working elsewhere within the Americas and within North America.

**Mr O'Toole:** To the Chair, I have a quick question.

**The Chair:** It'll have to be 15 seconds.

**Mr O'Toole:** At Bruce A development, are you going to do the four reactors, or just two of the four?

**Mr Morris:** We are restarting two of the four reactors.

**The Chair:** Thank you very much for your presentation. We appreciate your coming before us and offering your information. It's very helpful.

**Ms Churley:** Mr Chair, while the next group is preparing, I think that was a very interesting and important question Mr Hastings asked. A point of information: when I was Minister of Consumer and Commercial Relations, we challenged GATT. The Americans wanted to bring canned beer into Ontario. We challenged them and we won it on the basis that we have been returning our bottles since 1905 or whenever it was. The fact that it was in place already, that we didn't put it in, it couldn't be seen as a trade barrier in that case. That's why it's important to—

*Interjection.*

**Ms Churley:** Yes, they wanted to bring the cans in, but we'd been doing the refillable bottles since the early 1900s. So if you've got the rules in place, it can't be seen as being put in place as a trade barrier. At least that's the way it was on the GATT. We actually won that one.

**Mr Hastings:** My question was, Mr Chairman, could NAFTA or our existing so-called free trade agreement be a barrier or a challenge mechanism for renewables on the financing side of renewable energy?

**Mr O'Toole:** It's a federal question and that's who we should pose the question to. It's a federal issue. There are examples in Texas, Massachusetts and Michigan. RPS programs are clearly subsidies.

**The Chair:** A clarification through legislative counsel.

**Mr Jerry Richmond:** From the way the question has been posed—and I'd have to look at the Hansard—could there be, in simple terms, NAFTA challenges, I get the sense, to subsidy supports for green power? That's the essence of it.

1640

**Mr Hastings:** Yes.

**Mr Richmond:** From what you've said, that question could either be bumped to our federal colleagues for a response, or I should say that one of our lawyers could look into it to see whether under the current NAFTA agreement that's likely to be—

*Interjection.*

**Mr Richmond:** What is your preference?

*Interjection.*

**Ms Churley:** I think that it would be worthwhile to ask both. When we were going through the GATT ordeal we certainly had good people here working in conjunction with the feds.

**The Chair:** We'll table it to both. Are we almost ready for the presentation?

#### BODYCOTE MATERIALS TESTING CANADA INC

**The Chair:** Our next presenter is Bodycote Materials Testing Canada Inc. Mr Sumar, program manager. You have 20 minutes.

**Mr Mehboob Sumar:** My name is Mehboob Sumar. I am the program manager at Bodycote Materials Testing Canada Inc. As you know, we used to be called Ortech and in January 1999 we were privatized. We are now part of Bodycote Materials Testing.

Thank you for having me here. I'm pleased to be here. My talk will be mainly on what we did at Ortech, or Bodycote now, in the area of alternative fuels and in the area of transportation generally.

Why do we meet here? What are our interests and needs? I'll introduce you to Bodycote Ortech. And are there ways whereby we can be part of your team for alternative fuels?

Bodycote International Plc is based in the UK and we've got four major divisions: heat treatments, hot isostatic pressing, materials testing and coatings and Ortech Bodycote Materials Testing Canada Inc now comes under the materials testing division of Bodycote Plc. We have a number of labs here in Ontario, as well as in Quebec.

It's over \$1 billion in revenue, there are over 200 plants and labs in North America, Europe and the Middle East and it employs over 5,000 employees. We serve all major industrial sectors.

How did Bodycote International come to be? Four partners started a heat treatment company and from there on started acquiring a number of companies, and today they have over 200 plants in over 19 countries. Heat treatment, by the way, is by far the largest in Bodycote Plc.

Ortech still exists. That's our technology headquarters. We are involved in contract research and development work, product and process innovation, analysis and testing, problem-solving and technical consulting.

It's multi-tenant, over 175 employees—20 PhDs, 30 MScs and BScs and 40 technologists. We are ISO 9002

registered. Ortech, Galt and OTL are based in Ontario. Technitrol, Analex and Envirolab are based in Quebec.

When Bodycote acquired Ortech, they acquired the main business: materials, health sciences and engineering and transportation. I come under the engines and emissions department.

We have six engine anemometers: two of them are EPA transient emission test cells and four development/durability test cells. We are recognized by EPA and the California Air Resources Board to carry out emissions testing. The two transient test cells are fully transient, and we do certification work mainly for original engine manufacturers.

We have a combustion air system; therefore, the test cells are provided with combustion whether it's wintertime or summertime. Also, the tunnel, which will come to you in the next slide, is provided with combustion air.

We've got four development/durability test cells whereby we can do steady state emissions. They range from 300 horsepower to 600 horsepower. We have in-cylinder pressure measurement to measure cylinder pressures inside the combustion chamber, to measure cylinder pressure, heat release and mass fraction burned. All the test cells that we have are multi-fuel; that is, we can run any alternative fuel—LPG, CNG, ethanol, methanol, biodiesel and so on. We have fuel ratio meters to monitor air fuel ratio inside the engine.

The emissions facilities: again, we are EPA- and CARB-recognized with emissions too. The dilution tunnel is a 2000-FCM tunnel and we can measure FTP cycle emissions real time, total hydrocarbons, CO, NO<sub>x</sub> and CO<sub>2</sub>. So, second by second, we can measure the emissions coming out of the engine. Normally, the FTP cycle is 20 minutes long, so we run the transient cycle followed by a hot soak and then followed by the hot cycle. There's a cold cycle, a break of 20 minutes, which is called a hot soak, and then 20 minutes. We don't have to measure bag emissions. We measure non-methane hydrocarbon, we measure methane from the engine, we measure total hydrocarbons, and we can then subtract to measure non-methane hydrocarbons. We also measure particulates coming out of the engine. As you know, the particulates in the state of California are a carcinogen, toxic air contaminant, and we can measure that. We do meet EPA and CARB requirements, their procedures for doing emissions testing.

We have two other benches, which are raw emissions benches, to measure emissions, for example, catalyst in, catalyst out, so we can measure engine now, cat in, cat out. We also do off-road cycle emissions. EPA and CARB require that. We can measure aldehydes too, ketones. We can also measure hydrocarbon speciation. Whatever is coming out of the exhaust, we can measure what is the hydrocarbon coming out of the exhaust in speciations. There are about 10 to 15 hydrocarbon speciations that we can measure. Normally there are about 200 in a diesel engine. We also acquired an AVL smart sampler, which is devised for measuring particulates, mainly for off-road emissions.



This information is about our test cells. We've got six test cells. Five and six are fully transient test cells going up to 600 horsepower and one test cell goes to 9,000 RPM. Other test cells go from 300 horsepower to 600 horsepower. So in the area of automotive heavy-duty transportation, we can meet almost every engine requirement for emissions testing.

Further work that we've done at Ortech: the emissions calibration and development. The fuels, as I mentioned: there is mainly gasoline, ethanol, methanol, diesel, biodiesel, LPG, CNG. All that work has been done at Ortech.

Comprehensive data acquisition for performance, for emissions, for combustion and catalyst/filter efficiency.

Other projects we've done are diesel particulate trap systems. We work quite a lot in that area. Lean  $\text{NO}_x$  catalyst with ammonia and diesel fuel used as a reductant: this was a project sponsored by the Transportation Development Centre; that's the federal funding. We injected ammonia upstream of the catalyst to achieve  $\text{NO}_x$  reduction and we achieved over 90%  $\text{NO}_x$  reduction. In the second stage we used diesel fuel as a reductant and we injected upstream of the catalyst and we achieved over 20% to 30%  $\text{NO}_x$  reduction at steady state. Then we were in a transient cycle; we achieved about 20%  $\text{NO}_x$  reduction. So there is technology available to reduce  $\text{NO}_x$  emissions from vehicles.

We also did work on the Cummins L10 natural gas engine, which we developed at Ortech, and today the buses in Toronto are only with Cummins L10 natural gas engines. That engine was developed at Ortech with natural gas. We do emissions certification and calibration for both on-road and off-road engines. A few years ago we tested an aero engine at Ortech. It was a 600-horsepower aero engine. We did catalyst aging and efficiency testing. We had a project from California Air Resources Board—Natural Resources Canada was part of the team in there—and we tested a Cummins 5.9 LPG engine. We were given the task of doing emissions testing. We did exhaust hydrocarbon speciation. We sent the results to the California Air Resources Board, and from then on they have put in HD-10 as the fuel of choice in the state of California.

#### 1650

We do high-pressure diesel injection gasoline pump tests. As well, we've been doing OEM 10-minute and 20-minute hot tests.

As you are aware, we developed a gaseous fuel injection, GFI, system at Ortech. We designed it, we developed it, and today GFI Inc in Kitchener is a company which employs over 150 staff.

We developed the natural gas GFI system, we developed a liquefied propane gas system and a CNG regulator for shared access. We did vehicle emissions certification testing at Ortech, but today we are out of that business because we do not develop vehicles here in Canada, so we couldn't find any work for that dynamometer, so we sold the dynamometer. But in the engines area, most of our work comes from the United States. We

currently do CNG and LPG emissions certification calibration development for our clients right now.

Other projects that we did were diesel particulate trap systems. We developed the first Ortech trap system, which we installed in a bus in New York City. Then we installed a Webasto trap system in New York City. Then for one year we developed the Deutz trap system and installed five trap systems in Denver, Colorado. We also developed the Webasto trap system. These are trap systems to trap diesel particulates that come out of a diesel engine. Today, for the 2000 cell requirement, EPA CARB has a new regulation of 0.01 particulates for 2007 engines, as well as 0.2  $\text{NO}_x$ . So it's a challenge for engine manufacturers and catalyst manufacturers to meet that.

Another area that we do work on in transportation is vehicle dynamics. We have a 6-post turbo where you can shake a heavy-duty bus, one of its kind in the world, and that's quite a busy facility today. We also have a 4-post turbo, which is a climatic chamber, which can go from minus 40 degrees F to plus 180 degrees F. That's quite an investment that we have at Ortech, our Bodycote lab, and it's quite a busy chamber.

We have a multi-axis simulation table to simulate for the cab of a truck or any vehicle or anything of that sort. We can do that. We also do engineering, FE analysis, finite element analysis, for clients.

We have a solar testing lab which is part of Canmet, whereby we can simulate an Arizona-type environment. We did work for Saturn some years ago.

We have solar weathering equipment at Ortech. We obtained the capabilities of Ortech Corp, a worldwide network of testing laboratories and metal treatment plants. Ortech has transportation, engine and emissions facilities for doing development work and R&D work.

Thank you for your attention.

**The Chair:** We have about a minute and a half per caucus, starting with Dr Bountrogianni.

**Mrs Bountrogianni:** You know that the mandate of our committee is to report to the government on recommendations to look at and implement renewable energy sources. What are your recommendations or suggestions to our committee?

**Mr Sumar:** We are very strong in natural gas and propane here in Canada. As far as infrastructure is concerned, we are developing LPG infrastructure and natural gas. When you look at emissions compared to diesel, natural gas gives very low emissions in terms of  $\text{NO}_x$  and particulates especially. Therefore, if you're looking at sources of fuel, natural gas seems to be a choice of fuel. LPG gas is also a good fuel with low emissions. So it's natural gas or LPG, depending upon the economics, really.

**Ms Churley:** This was a very technical presentation, and I'm going to confess that in such a short time I don't fully understand all that you do, but it seems you have quite a variety of tasks involved in your company. So I just want to take a look at this later. I don't have any

particular questions at the time, but thank you for this presentation.

**Mr Sumar:** I have my business card. I gave it to Tonia, so if there are any question, you can give me a call.

**Mr Gilchrist:** Thank you, Mr Sumar, for your presentation. From the very outset of our hearings we were struck by the different numbers that were being quoted by proponents for different technologies, and I posed the question, whom can we trust? It's nice to know that here in Ontario we seem to have at least one commercial testing facility that has the wherewithal to perhaps assist in getting some of the answers in terms of the true benefits of some of the additives that may be the short-term solution, improving the quality of our gasoline now, whether it's ethanol or additives for diesel, and then I'm sure being part of the longer-term solution as well, with your expertise in natural gas.

To that extent, you mentioned some of the things you're doing with particulate traps. In the testing side of fuels, have you been involved at all in any initiatives to improve the existing quality, for lack of a better term, of gasoline and diesel fuel, I guess in both cases through oxygenation?

**Mr Sumar:** We do not touch the fuel area, in fact. Fuel companies develop their own fuel to meet the—for example, in diesel, they meet the cetane number and aromatics. Also, for Canada, as you mentioned, they're going to go to low-sulphur fuels here. But, no, we do not develop the fuels.

**Mr Gilchrist:** Sorry, forgive me if I wasn't clear in the question. It's not so much the development, but have you been involved at all in the testing of competitive claims being put forward by people looking to do different things to existing fuels? I got the sense from your presentation that that was a capability in your shop.

**Mr Sumar:** We do have the capability of testing different fuels. We did some work for a client many years ago whereby they wanted to use the engine oil from the heavy-duty vehicle and put it back into the engine. We did tests by blending engine oil, of 0.25%, 0.5% and 1%, back into the fuel. We did emission tests and we did particulate emissions and gaseous emissions. We found that with 0.25% there was no impact on emissions, whereas when we increased the amount of oil going back into the diesel fuel, there was an impact on particulates mainly. Gaseous stayed the same. So we are capable of testing various fuels. We test CARB fuels, we test EPA fuels, we test fuels of different sulphur levels. We did biodiesel work with different biodiesel blends of 20%, 30%, 50%. So yes, we do have the capability of doing that, but we do not go and change the fuel specifications in any way.

**The Chair:** There is a minute left in his presentation, but remember you're eating into the dinner hour, so you may have to meet with the wrath of other members.

**Mr O'Toole:** The low-sulphur diesel was said to be the future, legislatively, for diesel application. Do you test locomotive or jet emissions with respect to particulates or other NO<sub>x</sub>/VOCs, carbons, whatever?

**Mr Sumar:** We have not tested jet fuels or locomotive fuels yet because the engine capacity over here is a dyno capacity up to 600 horsepower, and we don't have the capacity to test locomotives. But yes, we do fuel testing in terms of emissions, performance, durability. We do that.

**The Chair:** Thank you very much for coming forward. Time is up. We appreciate, as was mentioned earlier, the very technical presentation.

The committee now stands recessed until 6 o'clock.

*The committee recessed from 1700 to 1800.*

*Report continues in volume B.*









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Deuxième session, 37<sup>e</sup> législature

# Official Report of Debates (Hansard)

Thursday 30 August 2001

# Journal des débats (Hansard)

Jeudi 30 août 2001

Select committee on  
alternative fuel sources

Comité spécial des sources  
de carburants de remplacement



Chair: Doug Galt  
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## LEGISLATIVE ASSEMBLY OF ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCES

Thursday 30 August 2001

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

COMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Jeudi 30 août 2001

*Report continued from volume A.**The committee recessed from 1700 to 1800.*

**The Chair:** We'll call the committee on alternative fuel sources back to order.

## ADM AGRI-INDUSTRIES

**The Chair:** Our first delegate this evening is Robert Barlow Cash, Canadian environmental manager, ADM Agri-Industries. I hope you don't mind presenting right after dinner; sometimes that's the toughest slot to have.

You have 20 minutes in total for your presentation. What time is left over will be divided equally among the three caucuses. Please state your name as you start.

**Mr Robert Barlow Cash:** My name is Robert Barlow Cash, and indeed I'm the Canadian environmental manager for ADM Agri-Industries. I give you my thanks for your attention for the presentation, particularly given that we're at the beginning of what I suppose is a long evening for you. I'd also like at the outset to recognize the US National Biodiesel Board, which has kindly provided the presentation you'll see this evening, and indeed my presentation is on biodiesel.

I thought it would be appropriate to start with a quick introduction to who ADM Agri-Industries is. We are, among other things, Canada's largest flour miller, with nine flour mills across Canada, four of those here in Ontario. We also have four edible-bean processing plants; one starch-gluten processing plant; two chocolate-cocoa plants, both of those here in Ontario; two animal health and nutrition plants, one of which is here in Ontario; and, of greatest relevance to this discussion, two oilseed processing plants, one in Alberta and one in Windsor, Ontario. At the Windsor oilseed processing plant we process soybeans and canola seed.

ADM also owns 19% of the recently merged United Grain Growers and Agricore, which you'll see in the presentation, with a number of sites. ADM has over 1,000 employees in Canada. Our involvement in the Canadian economy exceeds \$1.5 billion, of which \$1 billion is here in Ontario.

ADM Agri-Industries is a subsidiary of Archer Daniels Midland Co of Decatur, Illinois, which had roughly \$20 billion in global sales last year. The president of that company is John McNamara, a proud Ontarian who spent much of his career with ADM here in Ontario, in Windsor and Toronto. ADM has significant

involvement in alternative fuels, as we produce roughly half the ethanol used in vehicles across the United States and approximately 25% of the biodiesel used for vehicles in Europe. We're very interested in alternative fuels in Canada.

Biodiesel has advantages both from an energy and an environment perspective. Briefly stated on the energy side, biodiesel is a renewable energy. It's made from homegrown commodities, has a very short supply chain and is very competitive with diesel on an energy basis.

Briefly on the environment side, low-content biodiesel blends at the range of 1% and 2%, mixed with regular diesel, allow for the use of low-sulphur diesel, because biodiesel greatly improves lubricity, a critical feature lost when the sulphur is removed to make low-sulphur diesel. In a variety of different blends ranging from 2% to 100% biodiesel, or neat biodiesel as it's called, emission improvements are observed.

I should also add that the econometrics are good for farmers. As demand increases for oilseeds, so does the quantity price. From a government treasury perspective, a US-based study shows that biodiesel use in substantial quantities—and by this is meant hundreds of millions of gallons—would create a net benefit to government treasuries, offsetting a relevant subsidy that might be necessary to support biodiesel.

Biodiesel is not just an alternative for trucks. Indeed, there is a good range of mobile sources that can benefit, including transport trucks, utility vehicles, mass transit, school buses, rail transportation, marine and aviation uses. But biodiesel is useful and practical for stationary power sources as well, including industrial, commercial and institutional boilers, turbine generators, backup generators, home heating and similar uses.

How is biodiesel produced? In short, biodiesel is made from the reaction of an alcohol with a triglyceride—and that triglyceride is usually vegetable oils, animal fats or recycled cooking oils—in the presence of a catalyst. There are two main products: biodiesel and glycerine, and the reaction favours biodiesel at about 90%.

What's really interesting is that the energy balance for biodiesel production means we gain 3.2 energy units for every one energy unit expended to make biodiesel. Diesel is much lower, at 0.88, actually a loss.

How does biodiesel perform relative to other fuels? Well, like all CI or compression ignition engines, biodiesel is 30% to 40% more efficient than spark ignition

engines. Biodiesel has a more attractive cetane value, at 50, compared to 42 for regular diesel. A cetane value of 40 is the minimum required in the United States. In case you didn't know, cetane is a measure of the affinity of a compound for auto-ignition and is an attractive feature for fuels.

Biodiesel also has a very high lubricity, essentially twice as high as diesel. That's also very attractive. The energy content of biodiesel is very comparable but slightly lower than diesel.

From a cold flow perspective, a 20% blend of biodiesel in regular diesel with some flow enhancement additives prefers temperatures above minus 15 Celsius. We'll talk a little more about that later.

The flashpoint of biodiesel is higher than regular diesel, at 149 Celsius compared to 47 Celsius for regular diesel. A higher flashpoint suggests safer storage.

From a health effects basis, tests have confirmed that biodiesel is 10 times less toxic than table salt and degrades as fast as sugar. This is particularly attractive for marine applications.

From an emissions perspective, if you look at biodiesel itself, it has essentially no sulphur, nitrogen or aromatic hydrocarbons. It does contain about 11% oxygen by weight.

Biodiesel use reduces emissions of most US and Canadian regulated contaminants, including particulate matter, carbon monoxide and sulphur oxides. Nitrogen oxides can be slightly higher or lower, depending on the blend ratio of biodiesel to regular and engine operating conditions.

From a global-warming perspective, greenhouse gases are reduced by 80% based on a closed-loop life cycle assessment. Why so high? The CO<sub>2</sub> emitted by combustion is balanced by CO<sub>2</sub> absorbed by the oilseed grown to produce the biodiesel.

Mutagenicity tests have shown that biodiesel use reduces the risk of cancer and birth defects compared to diesel. There's a 90% reduction of air toxics, including a 75% to 90% reduction in PAHs—polycyclic aromatic hydrocarbons—and nitro-PAHs.

I'd like to give you an idea of the product status in the United States right now. In the US, biodiesel and its various blends are registered and legal with the EPA following a rigorous assessment process. It has also achieved official alternative fuel status, and the Department of Energy has provided support by means of committing to use one million gallons of biodiesel in the year 2002.

Biodiesel is also called an acceptable EPACT compliance option in the US, which means its application has been approved as a means to comply with a legal requirement for US federal operations to purchase or modify vehicles to achieve a certain alternative fuel use standard.

With almost 72.5 million kilometres of application, biodiesel has gained market and OEM—original equipment manufacturer—acceptance both in the United States and Europe.

This list of biodiesel customers shows you there are not only many biodiesel customers and many applications for biodiesel, but that the government itself can help create a market to stimulate and support biodiesel use and production. Many of these, of course, are US, but you'll see they include many that are comparable to our own ministries of transportation.

Related to this, there are also a number of initiatives the US federal government has implemented to promote biodiesel and alternative fuel use in the United States, including three presidential orders mandating biodiesel purchase, a subsidy-like bio-energy program and a goal-oriented order to displace 20% of current mobile fuel use by the year 2010.

Various other US agencies have developed policies and implemented formal as well as ad hoc commitments to support biodiesel use. We could go on with a number of examples in greater detail, but I won't at this point.

I'd like to examine some common biodiesel myths, the first one concerning cold flow conditions. We believe cold flow challenges can be overcome with further work on additives and blending in order to make biodiesel applicable in Canada for all seasons.

#### 1810

Regarding cost, biodiesel does not need to be too expensive. Appropriate programs, subsidies and incentives can be implemented to make economic sense and can price biodiesel at relevant market prices.

With respect to availability, biodiesel is now widely available in the US, where markets have been developed, and I should also say that biodiesel is widely available in Europe. We can do the same here.

From a warranty perspective, based on the US and European use of biodiesel and OEM acceptance, warranty issues are not significant and can be readily addressed and resolved.

Finally, the question is, is more testing needed to determine whether biodiesel is a viable option? No, there isn't a need. Biodiesel is widely used throughout Europe and is accepted by the stringent US EPA as an alternative fuel. I might say there's no need to reinvent the wheel; it's already on the road and running.

**The Chair:** Thank you very much for your presentation. We have about two and a half minutes per caucus, beginning with Ms Churley.

**Ms Churley:** We've had a couple of presentations now on biodiesel, including one from the Ontario Soybean Growers. I'm sure you're familiar with them. They gave some specific recommendations, and I won't go into them all, but you haven't made specific recommendations. One of the things they say is essential, and that's their language, is that biodiesel have the same federal and provincial excise tax exemptions that are currently in place for other alternative fuels. Would you agree with that, that that's one of the problems in getting this on the road, so to speak?

**Mr Barlow Cash:** That's certainly one of the options. I'm not sure that it's the only one or necessarily the best



one, but it's a good option towards improving the competitiveness of biodiesel in the alternative fuel market.

**Ms Churley:** You're saying that's one option. Quickly, what would some of the other options be that we could look at?

**Mr Barlow Cash:** Unfortunately, for this presentation we didn't assemble a list of the things. We're not far enough along in our market assessment to be able to come up with good, conclusive advice to the government on what would be good ideas, but we certainly do want to work both with this committee and other interested parties to further develop those.

**Mr Hastings:** Robert, if the Ontario government did get involved in some demonstration project or made it a requirement under an RFP or what have you for a fleet situation, would we, beforehand, have to get an approval from Environment Canada or from Transport Canada comparable to what the EPA and the energy department in Washington—energy being only the policy side—to have it cleared as an operating fuel on your highways?

**Mr Barlow Cash:** To be honest, I'm not sure what we'd have to do with the federal government, but I can quickly find that out for you and report back to the committee on that.

**Mr Hastings:** It would seem to me if you went before and didn't have a project in mind, a specific proposal, that would hold it up. But if you had something concrete, that would move it in Ottawa a little faster.

**Mr O'Toole:** If I may, biodiesel was brought up earlier today in a presentation from the OTA and was dismissed as one of the alternatives; they're really advocating the low-sulphur diesel. They said there was some problem with the product. I was looking it up in their notes. I did quote what he said: "Biodiesel is not effective." That's from the OTA. They're the biggest consumers of the product. How do you respond to that? You've said it's broadly in use in other jurisdictions. What's the problem?

**Mr Barlow Cash:** I'm not too familiar with the nature of their concern, why they feel it's not viable, but it is widely used.

**Mr O'Toole:** Does it affect horsepower or maintenance life and all these myths that you tried to address here?

**Mr Barlow Cash:** I'm not aware of anything that is substantive that's prevented its use.

**Mrs Bountrogianni:** Thank you for your presentation. I've noticed, and perhaps I missed it, and forgive me, that you have processing locations in Canada and your customers are American. Are there any Canadian customers yet? Did I miss that?

**Mr Barlow Cash:** I'm sorry. Customers for?

**Mrs Bountrogianni:** For your product.

**Mr Barlow Cash:** Our product range—ADM Agri-Industries—as I say, we are Canada's largest flour miller and oil seed processor. Those are Canadian customers.

**Mrs Bountrogianni:** But for this particular product?

**Mr Barlow Cash:** For biodiesel?

**Mrs Bountrogianni:** Yes.

**Mr Barlow Cash:** No. We do not manufacture biodiesel in Canada. We produce—

**Mrs Bountrogianni:** Oh, so these other locations are for other products.

**Mr Barlow Cash:** That's right: flour, oil seed, animal feed, edible beans, chocolate, cocoa.

**Mrs Bountrogianni:** My misunderstanding. Basically my question was the same as Ms Churley's. I look forward to the recommendation.

**The Chair:** Thank you very much for your presentation. It's much appreciated.

## CANADIAN RENEWABLE ENERGY CORP

**The Chair:** Our next presenter is Patrick Gillette, vice-president of the Canadian Renewable Energy Corp. You might want to take one of the microphones at the other side and sit down and relax. Thank you for coming forward.

**Mr Patrick Gillette:** Good evening. My name is Patrick Gillette. I am the vice-president of acquisition and corporate affairs of the Canadian Renewable Energy Corp, CREC. CREC is located at 2395 Speakman Drive, Mississauga, Ontario. I also hold a master of environmental studies degree, York University, and a master of public administration degree, Queen's University. Both degrees focused on energy and privatization issues in the province of Ontario.

I want to begin by thanking the Chair of the select committee on alternative fuel sources, the Minister of the Environment, and the committee members for allowing CREC to make this deputation.

CREC is a private Ontario-based developer of renewable energy assets. We will finance, build and sell green energy in the province after market opening. CREC is financed through private investment, with our main investor being the ARC Financial Corp, Alberta, Canada, through its ARC Canadian Energy Venture Fund 2. This information is provided in our submission in appendix 1 or it can be found at our Web site, which is [www.crec.ca](http://www.crec.ca).

CREC is the only company, other than Ontario Power Generation and its partner British Energy, that we are aware of that is proceeding to build a renewable energy asset in Ontario this year. Pending Ministry of Natural Resources approvals, CREC will be constructing a three-megawatt Eco-Logo certifiable "run of river" hydro-electric facility in the Kirkland Lake region. Once again, this information is contained in appendix 2 or it can be found on our Web site.

CREC has plans to invest, in equity and debt, over \$400 million in the next six years to construct in excess of 200 megawatts of capacity, which will include water power, wind, biomass and biogas projects.

The mandate of this committee as I understand it is to "investigate, report, and recommend ways of supporting the development and application of environmentally friendly, sustainable alternatives to our existing fossil fuel sources." I will constrain my comments to that mandate, but invite the committee to seek our input at

any time during its investigations or afterwards. I will also attempt to keep my comments brief so as to allow for any questions that the committee may wish to pose at this time.

I would like to begin with the most obvious of observations. The government of the day, to its credit, showed the leadership and vision needed to open Ontario's market to competition. Now it must complete that task and open the market by May 2002 at the latest. Any further delays will drive out of the market the emerging renewable energy business. CREC, over the past two years, has been approached several times by other jurisdictions.

At a minimum, the government must open the market to the sale of renewable energy. Presuming there is no technical reason, only concerns related to price, the government should open the market to renewable energy sales. Why? Renewable energy will be sold at above-market prices as a premium product, so price for standard supply is not an issue. In fact, it adds to the overall market supply, which will indirectly help control price increases by decreasing demand for the standard supply mix.

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Yes, price increases will happen. I believe this committee must accept that in a market that has seen no price increases for eight years, is removing indirect market subsidies, and requires massive re-capitalization that there will be price increases. However, supplying the green market, which can be estimated initially at 1% to 5% of the total market, will decrease some of the upward price pressures on standard supply by reducing demand. This estimate is primarily based on the United States Department of Energy figures that show that in 48 American jurisdictions in 24 states there are existing green programs; average market demand is 1% to 5% at a premium of 1 cent to 2 cents per kilowatt hour.

In short, we are behind the Americans and many other jurisdictions. This should cause the committee to ask whether, once again, Canada and Ontario are missing a long-term trend in industrial development. Our caution has sometimes hurt us and now, in a global marketplace, the penalties are much higher and less forgiving. To reiterate, we need market access and competition.

Secondly, we need a level playing field. Many discount renewables as a too expensive and not competitive. Only if society accepts the following:

(1) That the financial and social costs of burning fossil fuels should not be charged to production. We know there are substantive costs related to medical, infrastructure, tourism and the yet to be calculated costs of global warming; and

(2) The yet to be paid, deliberately delayed costs of uranium mine decommissioning, uranium refinement, nuclear waste disposal and reactor decommissioning.

Both costs are either borne indirectly or directly by society, or will be paid by future generations. Either cost can be calculated in the hundreds of millions or billions of dollars. This does not take into account the various

direct and indirect subsidies both industries have been granted in the past decades.

To highlight what I am suggesting, may I draw the committee's attention to appendix 3. Enclosed is an excerpt from an October 1993 report commissioned by Atomic Energy of Canada Ltd, AECL, from Ernst and Young. I apologize that I cannot provide the full report, but given the limited time to prepare, I was not able to find a complete copy. It showed upward rising prices for nuclear power versus coal when decommissioning and fuel disposal costs are included. I would suggest the prices have since escalated and could be much higher. This document provides an example of the indirect subsidy provided to the nuclear industry at this time.

The Economist also echoes this opinion of the industry as a whole: "It is hard not to believe that if the cash thrown at nuclear power had been put into almost any other technology ... even hamster powered flywheels ... it would have produced something commercially viable."

My own research, when doing my master of environmental studies degree, which involved a cost comparison of fossil and nuclear power, showed substantial subsidies, verified from solid academic and government literature. I would suggest the committee engage a third-party consultant to examine this cost issue, and have this consultant examine the academic, government and industry literature to confirm that direct and indirect subsidies exist in Ontario and to what degree.

The question I will now put to this committee is, if you want renewable energy, how will the government level the playing field to producers that do not have society paying indirectly or directly for part of their production costs?

One option is tradable emission credits. However, the current structure, as proposed, is flawed. Its designers seem to have forgotten the key economic principals under which an emission credit regime functions. Those that pollute beyond the level set by society, known as the cap, must either reduce emissions or buy emission credits from those that do not pollute beyond this cap. This stimulates a market reaction: polluters either recapitalize plants or enter the market to the standards set by the government, that is, the cap. Those that cannot afford to recapitalize—as an example, an older plant—buy emission credits to delay recapitalization until it is optimal. In short, the polluter subsidizes the non-polluter in recapitalizing the industry to achieve governmental and societal goals related to air pollution.

In the case of renewable energy, we either do not pollute or reduce existing pollution emissions, yet the current system, as it is proposed, provides marginal financial rewards to the renewable energy developer. Why should current generation, fossil and nuclear in particular, have their costs subsidized by society, with no equal compensation to renewable energy producers?

Remember, one of the cornerstones of emission credits is to encourage new production methodologies to enter the market, recapitalize that market, but allow older production methodologies to function until the facilities'



useful life has expired. The current proposals do not adequately address that issue.

One real option for this committee to consider is a structure that forces full cost accounting of the production of electricity. This cornerstone of emission credits seems to have been lost in the current process. To achieve this goal, Ontario should consider building on the system functioning in the United States and allow for cross-border trading of emission credits. After all, smog considers no borders, and acting as if it does only hobbles the full potential of an emission credit system.

There are other options, less market driven but perhaps just as effective: tax credits for both production and consumption of renewable energy; direct charges to the polluters; favourable tax treatment for those who build renewables; and quotas and mandatory procurement. Examples are renewable portfolio standards and government procurement of renewable energy. However, because the alternative energy industry has been labelled as being non-competitive by established players, I am leery of these options without adequate public education. To reiterate, if the government desires renewable energy's entry into the market, it should recognize the hidden subsidy to other players and take measures to impose a structure that levels the playing field.

Thirdly, the government has to create a regulatory framework that is conducive to building renewable energy assets. As examples:

The current licensing structure should simplify the sale of green power with a goal of maximizing consumption. Currently it does not.

A clear retail sales and certification process should be implemented so as to protect consumers.

The regulations to build a site should be streamlined and clarified so as to encourage development; for example, the new water power guidelines being created by the MNR.

The process for acquiring crown land for hydro and wind development should be reoriented toward promoting renewable development. The government should also revisit the Lands for Life process, asking itself how renewable energy assets could be built on this land being set aside. Allowances already exist for mining and the forestry industry. Why should the renewable industry be treated differently?

Access to the provincial grid should be mandated, and measures should be taken to minimize costs.

The government should organize this within a separate department in the Ministry of the Environment, so industry deals with knowledgeable public servants who can assist in their efforts.

What does society gain by the government's taking such actions?

It encourages energy production that minimizes negative environmental costs and forces the real cost of energy to be paid by all consumers. This will allow renewable energy to compete on a level playing field with traditional sources of generation. These actions would also encourage, as I am sure has been argued by

others, a move to conservation and less use, the optimal way of minimizing future costs and the need for recapitalization of the Ontario electricity market.

Renewable energy is a distributed generation technology benefiting multiple regions across the province. Examples of the benefits are: it reduces grid connection costs for local utilities; it clearly reduces intraprovincial transmission losses; it increases local tax bases; it increases local grid stability—power supply, ice storms and so and so forth that could take out the larger grid; and it benefits regional interests—wind leases for farmers, municipal taxes, First Nations power development.

It provides the market with innovative solutions that can help achieve other policy objectives; for example:

Animal waste disposal which produces methane for electrical generation. This could assist in increasing the number of animals per acre while protecting water quality;

Anaerobic digestion of organic municipal solid waste; and

First Nation and remote energy development in the north, which in turn assists the First Nations and opens the north to industrial development—mining and forestry.

It creates an export market to the United States, where there is an existing demand for green power. It encourages multi-million-dollar and potentially billion-dollar investments and creates an industry that can service a global community.

In summary, we propose in general that industry needs market access as soon as possible and no later than May 2002, including a clear process to export to the United States, a level playing field to set prices, and a clear regulatory structure and government institutions mandated to assist and not hinder our endeavours.

We propose specifically for consideration that if the government will not proceed to full costing of electricity, the government implement alternative measures. CREC would propose that the government mandate that all producers wishing to sell their electricity as green power into the Ontario market must match existing renewable power with new green power built after market opening. Furthermore, until OPG—Ontario Power Generation—completes its divestiture, it must purchase new renewable power from the market equal to the old generation that it plans to rebrand and sell as green power until it has completed divesting its generation base as currently mandated by the government. This meets current federal standards organized through the Eco-Logo program as to green power sales, specifically that generation built prior to 1990 must be matched with new generation to be labelled as green power.

This proposal is made in light of recent announcements by Ontario Power Generation; please see appendix 4. While we applaud OPG's ongoing commitment to the environment, this activity contravenes the purpose of market deregulation by allowing one player easier market access. Furthermore, OPG is supposed to be divesting assets and limiting its market role so as to encourage

market entry and competition, not expanding into the renewable sector beyond its current capacity of approximately 138 megawatts of old hydro generation rebranded as green power with marginal amounts of wind and solar.

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Furthermore, if properly structured this approach will encourage new green generation equal to market demand, dividing the market between new and old producers. Furthermore, the old generation built largely with government support will be capable of taking a lower price. In short, it's a subsidy that costs the government no new dollars and allows all players to make a fair profit.

CREC wants to support OPG's goal of bringing 500 megawatts of green power to the province, but with the private sector paying for the new generation within a competitive marketplace.

In conclusion, the benefits of what we have purposed are:

(1) The total, all-in cost currently paid by society for electricity will be reduced, and consumers will have access to a product they desire—cleaner air and a better overall environment.

(2) Diffuse investment spread across the province.

(3) Innovative approaches that assist the government in meeting wider policy goals and objectives but driven by the market and consumers at no cost to the public purse.

(4) The potential for new investment and new industries forming in the province.

Once again, I thank you for your time and kind consideration of CREC's deputation. I renew our offer of any assistance to the government and this committee. If time allows, I would be happy to answer any questions.

**The Chair:** We have about a minute and a half per caucus.

**Mr Hastings:** Sir, with respect to your recommendations dealing with the financing of energy, I see your company and other companies' involvement in trust units—that sort of thing—dividends for investors. My question specifically deals with retail investors. Martin has now established a Canadian renewable and conservation expense item. We've had a similar regime in operation for 20 years plus with the carbon or fossil-fuel-based industry. Would you recommend that specific flow-through share arrangement to attract retail investment in these renewables? There is a tremendous amount of money in Ontario that's going into pension funds. It's the free market, but it ends up in real estate and in things that you wonder, are there not enough retail investor products on the market to drive the sort of major policy initiatives you advocate here?

**Mr Gillette:** Firstly, it'll take me a second to explain how the flow-through works and what restriction they are; this is not brought forward in this deputation. The flow-through currently functions in a manner that precludes small investors. By and large it's been hobbled by Revenue Canada in several ways.

The first is, it's very difficult for us to use the CRCE flow-through. We have to first raise the money and then

spend it. We can't raise the money and spend it later; we have to incur the expenses after we've raised the money. It's more restricted than oil and gas, because they have a 60-day lookback. After December 31, they have 60 days to complete spending the money. So someone can use the CRCE and have the tax write-off in that tax year. For us, it has to be December 31. So basically, the period of time when we raise the most money is in September, when people are considering how to deal with their taxes, and we have four months to both raise the money and spend it, which is unrealistic.

**Mrs Bountrogiani:** Thank you very much for an excellent presentation. Once again, there are many overlapping recommendations from our presenters, and that's heartening to us. I do want to point to page 6, the first point in your summary. You propose, "(1) Market access as soon as possible and no later than May 2002, including a clear process to export to the United States." I guess I'll ask a question that my colleague from across the way, Mr Hastings, has asked a few times of our presenters: to your knowledge, would NAFTA, the free trade agreement between our two countries, limit us or put us in some sort of uncomfortable position in the future, if (1) were to pass?

**Mr Gillette:** How renewable energy would be treated under NAFTA is an interesting question, and I think we probably would want a ruling on that for a comfort zone.

The reason renewables are probably a good export for us to consider, if we could get a ruling from NAFTA separating them, saying there's standard supply mix and there's renewable. Renewable energy is a premium product. We have a big province. There's still a lot of renewable energy that could be developed here and then exported. If you could get that separation of the two, so that you are not making a commitment, I think you'd be on fairly safe ground. This is sort of a premium product that a proportion of the population will buy, so I think you'd be fairly safe on that.

The other advantage of renewables is that most renewable contracts are for intermittent supply, so it can be generated here. How the market works is, I may generate my power in Kapuskasing, as an example—it's going to go to the closest source—but what happens is that the IMO treats the closest power to the border as the power that's renewable and ships it across, but it could do it at night. It's intermittent supply. I'm not going to say to anybody that I'm going to deliver my green power at 3 am or 3 pm; it's going to come when it's generated. So it can be shipped across the border when there isn't a lot of load on the wires.

There has been really no process. To quote one group in the US to whom we have been talking about this, it's a little bit of black magic getting across the border. If we could clarify the rules, I think there's a market there for us.

**Ms Churley:** You pointed out in your presentation—which was very good, by the way, a very clear and concise representation of what's happening—while we're on the subject, that traditional fossil fuels, dirty energy



producers, are subsidized in various ways as well, and you talked about the externalities, the health care costs and other costs that are not factored in that are being subsidized. For instance, incredibly, nuclear power was subsidized and still is, even though it's in private hands now, which I find almost unbelievable. But it's entrenched; it's the way we've been doing business for so long that's got to be turned over.

My question relates to the question just asked. We're already in many ways subsidizing existing energy to keep the costs low, and I assume from all the presentations that it's the same in the US and other countries, so what would the difference be? It's simplistic, I know, the way I'm putting it, but why would this be treated differently under NAFTA than existing technology?

**Mr Gillette:** I believe you could get the NAFTA ruling, because it is a separate product sold in the United States in a great many different jurisdictions under the Green-e program. Georgia has a renewable energy program that has just come up. There are 24 jurisdictions. You probably can make the argument that we want to do renewable energy exports, but we don't want to get tied in that this is going to be a standard supply mix.

The other factor of it—and the government would have to consider how it constrains exports—is that the advantage is that this is extra supply that gets separated around the province, and the excess would be sold over the border. But it's going to be used where the source is. So some careful thinking might have to go into how much we allow export, an export licence being issued, but my understanding of NAFTA is that you can't get dinged—you can only basically be penalized if you stop selling the amount you're selling. So if we're selling 500 megawatts and we stop selling that for illegitimate reasons under the trade regulations, then we can be penalized.

**The Chair:** Thank you very much for your presentation. We really appreciate your coming forward to shed some new light on moving electricity around.

**Mr O'Toole:** Mr Chair, as a point of information to the researcher: several presenters have asked us about this equation of full-cost accounting of production of traditional energy or power. I wonder if we could have some attempt to summarize what we are all alluding to, that there are subsidies, direct or indirect, to nuclear, coal, so that we are all talking, whether it's the health care costs—could we get legislative research to give us a bit of a model on what full-cost accounting is all about?

**The Chair:** Certainly.

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## FUEL CELL TECHNOLOGIES

### KINETRICS

**The Chair:** Our next presenter is Robert Stasko, director of business development for Fuel Cell Technologies. You have 20 minutes for a presentation and questions and answers afterwards. As you start, please

state your name for the sake of Hansard, once you get going.

**Mr Robert Stasko:** Just to introduce myself, my name is Bob Stasko. I'm director of business development for a company called Kinetrics, formerly known as Ontario Hydro Technologies. I'm here actually representing Fuel Cell Technologies, another company involved in fuel cell development. Basically I'm representing both our companies and the fuel cell sector. I guess that's how I'll characterize it today, because I'm talking about some general policy initiatives in this area.

Just a little bit of background: Fuel Cell Technologies is a Kingston-based company which is developing residential fuel cells based on solid oxide fuel cell stacks. Kinetrics, as I mentioned earlier, was formerly Ontario Hydro Technologies. We're involved in several technologies, fuel cells being one, but we're also involved in the development of other renewable and alternative energy technologies. Today I'm going to emphasize issues relating to alternative energy.

I should just give you a little bit of background about myself. I've been in the energy area for about 25 years. I've worked on everything from energy from manure to fusion. I've been seconded to government on three separate occasions: to the Ministry of the Environment, the Ministry of Energy, and the Ministry of Energy, Science and Technology, under the Liberal and NDP governments and, most recently, the Conservative government. I just thought I'd throw that out for a multiparty committee.

What I really want to talk about today is the opportunity for government to address three major issues with a single crafted initiative, and I'm not going to pretend to lay out recommendations at this stage. I only had a week since I met Dr Galt at the AMO trade show, an event I would characterize as a shooting gallery for cabinet ministers. But that's another story. I've only had a week, so I won't pretend that I'll come up with definitive recommendations, but I'll go over these issues.

The opening of the Ontario electricity market: as we know, although we have three to five years of supply margin in Ontario, there are no assurances that new supply will appear when needed. Uncertainty in the gas and electricity markets, plus the possibility of government intrusion, has reduced the incentive for new investment in large generation facilities. Just to elaborate, considering the large capital investment that many of the private merchant generators would be involved in, they are somewhat skittish whenever they see a hint of any price caps or any changes in electricity pricing structures.

Last, merchant plants will be drawn to those jurisdictions with lowest risk and highest return, California and the northeast US at this time being the most popular.

Issue number 2: the need to address environmental air quality issues. As we know, the burning of traditional fossil fuels in trucks, automobiles and large fixed electricity generators has led to an air quality crisis. Distributed generation technologies are more environmentally benign, for many reasons, and have the potential to be

very efficient. By that I mean that renewable energy clearly has a very small environmental footprint. But even something like a fuel cell, when it's operating at 85% efficiency, which we project some of these devices will do when they're operated in a cogeneration mode, and with basically a turbine at the back end capturing the waste heat as well, compared to 35% for most generation right now, you can see that simply the emissions profile would be much lower, and of course, fuel cells do not emit NO<sub>x</sub> or volatile hydrocarbons anywhere near or even in measurable quantities.

Electrotechnologies in the transportation sector, which I'm not going to talk about very much today, nonetheless are worth mentioning, because we feel they are a key solution to the problem of transportation emissions. When I talk about electrotechnologies basically what I mean is fuel cells are, for all intents and purposes, a hydrogen battery. So you're talking about an electric car, which has been a panacea for decades, if not a century.

Issue number 3: a provincial strategy on alternative energy solutions. By this I mean this may be part of a broader promotion of environmentally friendly distributed generation. I will refer to distributed generation technologies repeatedly in this presentation. At present, Ontario is home to what I would call a critical mass of fuel cell capabilities and expertise, along with other related and emerging technologies. By that I mean of course the other renewables and alternative energies but also supporting technologies for fuel cells, such as hydrogen generation, hydrogen production and advanced hydrogen storage. Here in Ontario we have companies such as ours or Fuel Cell Canada or Hydrogenics or Stuart Energy Systems, many smaller companies and many universities, all of whom are contributing.

Unless there is some action, this capability could be dissipated as companies move to other, more nurturing jurisdictions. As an example, I give you Ballard, which flew to the west coast many years ago and I suggest that they might not be the last. However, something of interest that's general knowledge now is that the state of Michigan has issued a 100-page document basically describing how they intend to be the fuel cell development centre for the United States essentially because they are the number one sector for automobile production in the US. I believe we are second only to them and so this should be an issue for us as well.

Finally, an opportunity to enable a new sunrise high-growth industrial sector with environmental benefits and premium jobs could be lost if we don't act.

My thesis is that the opportunity is to address all three of these issues with a single initiative. Under the Energy Competition Act, 1998, government can provide policy direction to the Ontario Energy Board to develop suitable incentives for distributed generation. As it now stands, in recent discussions with staff at the OEB, they are waiting for government direction on this issue and have stated that, and even though they are preoccupied with market opening, are quite welcome to begin a dialogue to find out what kind of incentives would be appropriate.

Government can develop additional cost-effective incentives targeted at the end user similar to what has occurred in other jurisdictions.

Finally, if carefully crafted, many of the incentives can be revenue-neutral through minor changes to existing codes and regulations. Again, I have some knowledge of this from my most recent involvement with the Ministry of Energy, Science and Technology and the development and implementation of the Energy Competition Act.

Electricity market dynamics in a deregulated environment: I thought I would mention that just to give you some of the background of where we will be without DG. The market will be dominated by a few large generators who will have great market power. Electricity flow will be constrained by transmission bottlenecks which will have price impacts. Price spikes will be created by large inelastic loads. By that I simply mean that generally people do not shed their habits of electricity use easily, so when there is a shortage of generation the prices spike. That's what has happened in California and that's what has happened in Alberta.

The fossil component of the energy mix is higher and that's because it's easier to dispatch, it's basically a swing fuel, and it can be brought on board very quickly, so there is generally more fossil generation in a spot market dynamic.

Finally, distribution utilities or municipal utilities at present have few innovative technologies to improve their performance. In effect, they are now trying to get better performance through amalgamation and efficiencies, but they have few technologies to help them.

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The solution: distributed generation concepts and technologies from the bottom up. Large generators balanced by robust local distributed supply create a more ideal market. You have more sellers and, as we know, when you have more sellers rather than a few sellers, you have more of a market condition.

Distributed generation reduces the load on the transmission system because the electricity is produced and consumed locally within a distribution system.

Dispatchable load and peak shaving or shifting technologies can also be brought on board to smooth demand, and basically the whole panoply of demand management technologies and systems which we've used before with great success we can use again as part of a broader initiative.

New distributed generation technologies like fuel cells will be cleaner, more efficient and less intrusive. By "less intrusive" I mean there will be less of a concern about people having these in their backyard. They are more environmentally friendly.

Distribution companies will have a tool to fine-tune their system performance by putting things like fuel cells or windmills or cogeneration facilities at the ends of long feeder lines where otherwise they might have to put in a capital cost to upgrade that line.

What are some of the policy tools that are available? Although more analysis is required, and I will be the first to admit this is not an exhaustive list, I would say



everything from a debt recovery charge variance that would be applied to efficient or renewable generation; tax incentives, some of which are in place but should be improved for capital cost allowance and also on revenue as in other jurisdictions; modifications to the generation licence requirements in order to incent more distributed generation; and finally, giving the local distribution companies more latitude in how they can use generation technologies, because presently under the act they are barred from doing so without setting up an affiliate.

How to implement this initiative: a combination of well-crafted regulatory incentives plus new co-funding for demonstration projects across Ontario.

Some alternative technologies have recently crossed the threshold, and I suggest that wind and conventional cogen are part of that. They might disagree with me, but I feel they've crossed that barrier. However, others do need incentives to overcome market barriers. These include fuel cells, biogas, photovoltaic, low head hydro and advanced energy storage technologies.

Incentives can be levered off modifications to existing OEB and MOE regulations after suitable stakeholder consultations. I'm sorry if that's redundant, but I thought it was a point worth repeating.

Finally in implementation, new initiatives are needed which would provide risk management for early adopters of new alternate technologies. These would be pilots that would encourage uptakes by others. Any funding needed for these initiatives would easily attract co-funding from the federal government, energy companies, the municipal sector, the early adopters and other private sector stakeholders. I can personally assure you of this, because I speak with these individuals as groups and on an individual basis on a daily basis.

In summary, distributed generation can help to stabilize the new electricity market and ensure that it operates as designed. Government proaction will ensure that new, efficient and environmentally sound energy systems such as fuel cells can address any future electricity supply gap and avoid the California and Alberta experience. The resulting market pull for advanced distributed energy systems will create an ideal business climate to establish a fuel cell industrial cluster in Ontario, something which I believe we all would like to see. Thank you very much.

**The Chair:** We have about a minute and a half per caucus starting with the official opposition.

**Mrs Bountrogianni:** An excellent presentation. You started out by saying you didn't have time for recommendations, but you did indeed include them. Again, they overlap with many of our earlier presenters. I don't have any questions. Thank you very much for your presentation and your expertise.

**The Chair:** Ms Churley?

**Ms Churley:** Ditto, I suppose, except I did want to ask—you mentioned that you did some work for this government on the OPG and deregulation. Can you expand a bit on what your role was?

**Mr Stasko:** Yes. I was seconded to the government, and again, there is a bit of an anecdote. I have some

nuclear expertise and I also have a wide range of expertise in energy technologies. I presumed that's what I would be applied to when I was seconded to the ministry, but in fact it was the deregulation issue that was driving everything. I was actually working more in the distribution sector trying to develop an implementation strategy to soften the blow on municipal utilities, so that's kind of why I know what their particular concerns and constraints are.

**Mr O'Toole:** On your policy tools, the debt recovery variance, tax incentives and local distribution companies—I know they're incentives. They're all asking for it in a different kind of vocabulary. But let's say we put in a policy where, by 2020, 20% of the power has to be from some sustainable form. What about the assets we currently own as Ontario citizens, even though it's old technology like a coal-fired generation plant, and the whole issue with OPG having to divest themselves down to 35% of the total generation capacity? How do we deal with those assets that become worthless if we send these policy signals? How do we deal with that? It's a real question.

**Mr Stasko:** I agree.

**Mr O'Toole:** We've got \$35 billion out there now that's sort of stranded. It's going to be paid for by somebody; let's call them taxpayers.

**Mr Stasko:** I think my only response to that is, this requires analysis. For instance, the kind of figure you mentioned as a target might create the very situation you suggest: stranding assets.

**Mr O'Toole:** How do they sell Nanticoke?

**Mr Stasko:** I think the incentive should basically be crafted to match the actual capability of this sector to deliver. Right now, frankly, we're struggling to get the sector to deliver on a lot of the green energy opportunities because there are not enough of them there. There is not enough critical mass.

**Mr O'Toole:** Pollution knows no borders, so the coal from our side or their side and all these emission trading credits and the bureaucracy to set up and monitor that—if we can sell current capacity to the States, we're going to be criticized for using coal, which is supposed to be a peak-load management tool. I'd be cranking the sucker up, because coal will be dead in 10 years and you might as well use it up. Do you know what I mean? How do you get around that?

**Mr Stasko:** There are clean coal technologies; I didn't talk about them today. It's just that some people view that as an oxymoron.

**The Chair:** We appreciate your presentation. Thank you for the invitation I extended to you at AMO. I appreciate seeing you on the schedule.

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## STUART ENERGY SYSTEMS

**The Chair:** The next delegation is Kevin Casey from Stuart Energy. There is a total of 20 minutes for your

presentation, and what's left over will be divided equally among the caucuses.

**Mr Kevin Casey:** My name is Kevin Casey, and I am vice-president of business development for Stuart Energy Systems. Thank you for inviting me here this evening. I'm here to talk to you about the hydrogen opportunity. This is an alternative fuels committee, and we believe hydrogen is the ultimate alternative fuel. Hopefully by the time I get through this very quick overview, you might agree to a certain extent.

One of the reasons we see hydrogen as the ultimate fuel is because it doesn't make a lot of technologies but it makes a lot of technologies better. It links them together. What you're seeing here is hydrogen as we see it, as the centre of a web of power technologies, linking them together and making them better, and not just average power technologies but renewable technologies and clean technologies that will certainly go a long way to improving air quality in this province and around the world.

At Stuart Energy, we've been doing one thing for 50 years and that's taking water and electricity and turning them into hydrogen and oxygen by zapping the water. It's a water electrolysis process. What that allows us to do is take electricity from any source at any time and convert it into hydrogen—a different form of electricity, if you want to look at it that way—store it, move it around, bring it to where people live and travel, and either use it in a process at home—cooking—or have it regenerated at home in a fuel cell or in a fuel cell that's aboard a vehicle or in an internal combustion engine that's aboard a vehicle. It can be used in storage and then regenerated and put back on the grid to shore up a lot of these power resources. So we see some tremendous potential in hydrogen improving the quality of life of people in Ontario.

To tell you a bit about Stuart Energy, the company was founded in 1958 and since that time we've been busy installing about 1,000 plants—

*Interjection.*

**Mr Casey:** Sorry, did I say 1958? You're quite right, it's 1948. I ripped us off for 10 years.

We've been busy installing about 1,000 plants, hydrogen generating facilities, in about 100 countries worldwide. We are the recognized leader in water electrolysis. It's a niche market, but we are the world leader, located right here in Ontario. We have about 180 employees at the present time and various sales offices around the world. We have had an excellent safety and performance record during that time. There has never once been any serious safety incident as a result of there being anything wrong with our equipment. More recently and more importantly, we have become one of the world leaders, if not the world leader, in hydrogen refuelling.

The partners in crime, as it were, are the Stuart family, who got the ball rolling many years ago. They own 50% of the company. There's the SC Johnson family trust. Sam Johnson, of Johnson wax fame, is a very strong environmentalist and sees some interesting commercial

applications to consumer products from what we're doing.

We also have a partner in Hong Kong, Cheung Kong Infrastructure. That's part of the Li Ka Ching group of businesses. The Li Ka Ching empire is one of the biggest, if not the biggest, corporations or group of companies in Asia with market capital of hundreds of billions of dollars. They own infrastructure, ports, highways, real estate, electric utilities—Hongkong Electric. We have a joint venture with them. Their task is to aggressively pursue the establishment of a hydrogen infrastructure throughout Asia using exclusively Stuart equipment. We're very excited about that.

We are also members of the California Fuel Cell Partnership, which I'm sure everyone is familiar with, a group of energy, fuel cell and auto companies that are trying to make the fuel cell a reality starting in California.

We also partner with SunLine Transit, a very forward-looking transit company in Palm Springs, California. SunLine has converted all their buses to natural gas and are next looking to convert them all again to hydrogen. We have one of our Stuart plug-and-play fuelling appliances down there fuelling an Xcellsis bus that has a Ballard fuel cell engine in it.

We have also recently set up a fuelling station at BC Hydro, in their Powertech Labs, that will also be used for fuelling vehicles they will be bringing up shortly.

What has allowed us to do this is a breakthrough in technology that was discovered or developed right here in Ontario at our Stuart labs. This is what we call our DEP or double electroplate technology. The breakthrough here is that it's the heart of our fuelling appliance, and the cell itself is designed for low-cost, high-speed manufacturing—simple materials, nickel-plated steel—and it's a very scalable type of technology.

This double electroplate is the integral component of the heart of our fuelling appliances, which are our electrolysis stacks. We've divided our stacks into three separate platforms—small, medium and large, if you will—in order to address the full range of fuelling requirements that might be out there. These in turn go into a series of fuelling appliances.

The personal fuel appliance, which you see here, is something that's designed for home use. We envision this going into the average user's home. It will plug into a 220-volt outlet like a typical stove, and all you have to do is attach a garden hose and you're in the business of hydrogen. You're making hydrogen.

You've heard all this kaffuffle about where the hydrogen infrastructure is coming from. This is infrastructure in a box right here. This unit on the left is the prototype that we have right now. The one on the right is the target we're shooting for. When fuel cell vehicles become commercial, this will alleviate a lot of the infrastructure issues. "Where am I going to get fuel?" is going to be the typical question a consumer will ask, and the answer is, "You're going to get it in your home." You're also going to be able to fuel from your home many other hydrogen devices, we hope, in the future.



A step up from that is our community fuel appliance. This is for small fleets. We see that as an introductory level for most companies with corporate fleets that want to get into the hydrogen game, and then a size up from that for large fleets or bus fleets, we have our bus fueller. That's a picture of the one that's down at SunLine California right now. The SunBus is one of their buses.

So we're going to fill the needs of all the hydrogen fuel users everywhere with this scaleable technology that is essentially plug-and-play. Everything comes in a box. All you do is plug in electricity and water, and high-pressure, high-purity hydrogen comes out at the other end.

We've been hard at this development program since 1995. The Ps represent different phases in our development program, and increases in power density or the shrinking of the unit footprint to make it smaller and more compact, and reductions in solid capital cost of a fuelling station based on hydrogen.

P1 was connected to a photovoltaic array at a Xerox facility in El Segundo, California. It was making hydrogen from electricity generated by the sun and it was feeding it directly into the tanks of hydrogen internal combustion engine trucks. So we were taking energy from the sun, creating a completely zero-emission pathway—there are no emissions in the photovoltaics; there are no emissions in our appliances. There's a bit of emission in an internal combustion engine running on hydrogen, but with a fuel cell there'll be no emissions. So you have a completely zero-emission pathway that we've established the technical feasibility of.

P2 was a project we did with Ballard and BC Transit from 1998 to 2000. We fuelled three Ballard fuel cell buses that were in regular revenue service. During that time we never failed to produce the hydrogen as required by those buses. So we're one of the few companies in the world that can claim a perfect track record in fuelling fuel cell buses in regular revenue service. Nobody else out there can do that at the moment. Air Products did it in Chicago—I should mention that—but we're the only other one.

In P3, technology was deployed last year at SunLine California, as I mentioned. The picture here is of the one we delivered to BC Hydro in January. We have another unit at the National Research Council in Vancouver as well.

We're moving on to P4, the next generation. The small one is a P4 technology that has been deployed at Ford, in our joint evaluation program with Ford. It's fuelling their fuel cell vehicle. We have another one at Atomic Energy of Canada Ltd.

The market opportunities for us: we see breakdowns of three main categories. The industrial applications have been our traditional bread and butter, but with the advent of the fuel cell or regenerative device that could take hydrogen and convert it back to electricity, a couple of other huge markets have opened up in transportation and regenerative power applications.

In the transportation market, here's a picture of the unit that's down at Ford. This is the Ford TH!NK fuel

cell vehicle, and we've been fuelling that at various trade shows and conferences around the country.

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Our strategy for solving the infrastructure problem and how we're going to win in the marketplace is based on some realities of introducing fuel cell vehicles, and this is what this graph is trying to depict. The green area is, if you will, the total number of vehicles on the road growing over time and the grey represents a possible penetration scenario for hydrogen vehicles. You can argue about the time and the slope of these, but in reality they're going to be very thin at the beginning. You're going to see very few hydrogen cars on the road—one in 10,000, one in 100, one in 10. The question is how you effectively fuel those vehicles when there are so few of them out there. That's where we think our small-package, scaleable appliance is the answer, because you're going to need an affordable, small, highly distributed system of fuellers. The current paradigm for making hydrogen is to make it very cheaply, but at centralized plants that make a heck of a lot of hydrogen. Unless you want to have everyone drive their cars to that plant, you're going to have a very difficult time in selling hydrogen cars. Our answer is to use the established infrastructure, which is the water and electricity grid that's already in place, and just add on a small appliance to start with, trade it in, swap it with a larger one. With our scaleable modular approach we'll be matching the fuel supply with demand in a cost-effective way.

This is where we see our place in the market. On this axis you see the cost per tankful; on the other axis is the increasing number of cars that need to be supported. We're going to dominate in the small end, where there are not a lot of cars that need to be supported. It isn't until you get into a very large number of cars that other forms of generating hydrogen such as steam methane reforming are going to become economical, because those technologies don't scale down very well. They're great if you want to make massive amounts of hydrogen, but if you're going to make it small-distributed, where people need it in their homes, at corner stores, wherever there's water and electricity, they just can't match that capability in terms of cost or convenience for the customer. We see ourselves as fulfilling an important role in getting things started for the infrastructure in the most cost-effective way.

This is our target. As far as economics are concerned, we believe we can get to a point where we're providing consumers with the same cost per gallon as gasoline is now. Our target in mass production of our equipment is \$250 per kilowatt. We have an efficiency right now, which we hope to improve, of 55 kilowatt hours per kilogram, a capital return factor of 7%, maintenance of 7% of capital cost per year, and an electricity price of 4%. We can get to a cost per kilogram of around \$3—these are US dollars, by the way. Since one kilogram of hydrogen is roughly equal to a gallon of gasoline in energy content, it's \$3 per equivalent energy content of a gallon of gasoline. However, fuel cell cars are going to

be roughly at least, we are told, twice as efficient as current internal combustion engines. So you just divide this by two to get your cost of a gallon of gasoline equivalent, which is about US\$1.50, which is what we're seeing in the US right now. So we believe this is achievable.

The reason we have a utilization rate of 46% is that we feel that in order to make maximum use and get the low-cost electricity, we're going to take advantage of the fact that we use off-peak electricity. We can make the hydrogen any time of the day we want, so we're not going to make it during peak periods. With deregulation and time-of-use rates, we feel we'll be able to access low-cost, off-peak rates. Not only that, but we'll also provide an avenue for renewable resources, such as wind turbines, to be more cost-effective. We feel we can establish long-term contracts for their off-peak electricity at above their marginal cost of producing it, which will provide a much stronger financial incentive for them to establish these wind turbines. So, through our equipment we will be inducing more renewable resources to be brought on line to serve the peak power markets, and we'll be taking the off-peak. That's why I have utilization rate of less than 50%, because we're making it only half the day.

We're also looking at the power markets because of the unique ability of hydrogen to store electricity. The other way of doing it right now is by battery, but once you go into large amounts of power that need to be stored for a longer period of time, batteries aren't feasible. Our solution is, turn it into hydrogen, store that hydrogen as a compressed gas and regenerate it, either with an internal combustion engine that runs on hydrogen or a fuel cell that runs on hydrogen, and you will have an effective storage mechanism. This allows us to shore up base load power with peak shaving and load shifting. It connects to renewables, as I said before, in a way that makes them more economically feasible. It's a system that can provide for backup power, peak shaving, as I said, and a source of hydrogen for portable power units.

Just a graphic representation of the way we see this happening: you take a wind turbine, off-peak electricity, run it through one of our electrolyzers, store it. You can take some of that hydrogen and put it into a portable device for cooking or whatever, or you can run it back through a regenerative engine of some sort and provide electricity to the end user.

Based on the assumptions you see here, which are all achievable with today's technology, with internal combustion engines, not fuel cells, we can get to an electricity cost, round-trip, of 11 cents per kilowatt hour. If you were to try to do the same thing with a diesel gen set, it would be a break-even of about US\$1.32 per gallon of diesel. That's what we're seeing in the marketplace in a lot of places, and it's certainly less expensive than a lot of places in the world.

So our strategy, in general, is to provide an appliance, plug-and-play, so the consumer or the fleet owner does not have to bother with anything. It's very reliable

wherever there's water and electricity. We're going to focus on the entry-level fuelling solution and provide scalability to match their investment with the hydrogen demand as the fleet increases. We're going to use low-cost, off-peak electricity to make the hydrogen, we're going to link to renewables as much as possible to provide a completely zero-emission pathway from cradle to grave, and we're going to use the same technology and the same product in these power markets, industrial and automotive, in order to drive down the cost curve. That's our pathway to a potential trillion-dollar market.

In summary, we believe that hydrogen is the ultimate fuel, because you can get zero-emission pathways, and electrolysis is really the only economically viable way right now to provide a true zero-emission pathway from the cradle to the grave. All the necessary technologies are in place right now except for the fuel cell. That will be coming; however, we don't need to wait for that. If you use hydrogen internal combustion engines, they are the cleanest available technology right now, and they are available right now, and they can be used in both transportation and stationary applications.

The message I would like to bring to you is that Ontario has the ability right now to take the lead. This is a nascent type of industry. You have some world-leading companies, and other areas around the world are catching on, but nobody has really jumped out in front like a Silicon Valley type of arrangement, so the opportunity is there for Ontario, if they want to take it, to be a world leader in this. We would suggest, to get started, you might think about some high-profile demonstrations, which we would be more than happy to participate in, and make things easier for people in our industry by providing the proper incentives and regulations that at least don't hamper us in what we're trying to do. Thank you for your attention.

**The Chair:** We're actually a minute over time, so we've run out of time for questions, but thank you for an excellent presentation, very much appreciated, and we just might take you up on your invitation to visit.

**Mr Casey:** I hope you do.

**The Chair:** Your location is Mississauga?

**Mr Casey:** Yes, near the airport there, on Orbitor Drive.

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RAY PASQUAN

**The Chair:** Our next presenter is Ray Pasquan. Please come forward. As an individual you have 15 minutes for a presentation, and anything that's left over after your presentation we'll divide up evenly among the caucuses for questions. Just state your name for the sake of Hansard, and the time is yours.

**Mr Ray Pasquan:** My name is Ray Pasquan. I was born and raised in Ontario. I'm an inventor and I'm also a tool designer, machine designer, and I'm not used to this.

**Ms Churley:** We're pretty harmless.



**Mr Gilchrist:** This side is, anyway.

**Mr Pasquan:** That's good. It's nice to be here. It's very distinguished company. Thank you for having me. I'm just looking here at names, and this is quite impressive.

**The Chair:** Don't let us make you uncomfortable. Just go ahead.

**Mr Pasquan:** Did the clerk hand out copies?

**The Chair:** Yes. We have them.

**Mr Pasquan:** I doubt if you've had time to read anything. I think on the cover you can see that "Heat Churn/Windmill (Max e Mill)" is the name of my windmill, and I've thrown in a wind power tower which may be interesting to people. Without wasting too much of your time—I think you've seen the photograph—I wonder if you could read page II regarding the heat churn and then we'll show the video after that.

This is an amateur video taken by my farmer friend out west, and it's not really of very good quality. I asked him to pan up to show the air brake at the top of the tower, a Kenworth air brake, by the way.

The electronics down below is not necessary for this windmill. It's just a small package required. We put it there just for demonstration. The tank at the bottom is the heat churn. That's a canister of nitrogen that will release the brake.

The heat churn has paddles in it as described here, and fluid friction converts the shaft power to heat. This was test electronics and not required for this windmill; it's just for demonstration.

I'll release the brake here. There is no motor to start this; it's self-starting. It's a little bit slow, but—

**Ms Churley:** It's doing better than the Ontario—

**Mr Pasquan:** This is actually more efficient than their windmill, believe it or not, but I shouldn't go into the numbers yet. This is just a general introduction to heat churns and windmills. It actually truncates fairly quickly.

I say that I'm going to put the brake on, but I don't get a chance to before it goes off. You'll see it spin quite quickly, and then I put the brake on.

Normally this windmill operates at three times the wind speed. In a high wind it takes a while to accelerate to speed, but once it's at speed it follows the wind.

OK, we're starting to go now.

**Ms Churley:** How long does it take to get up to that speed?

**Mr Pasquan:** A couple of minutes.

**Ms Churley:** So this is real time?

**Mr Pasquan:** Oh, yes. Now you're seeing it in action.

**Mr O'Toole:** It's going in reverse.

**Mr Pasquan:** No, that's an optical illusion.

OK, the brake went on. Believe me, it stopped. The air brake stops in a hurry.

Pardon me for the quality of this video. He wanted to come back and do it again, but he didn't get a chance to and that's all I've got at this point.

Anyway, I could move to page III. I'm not necessarily going to read it all to you. It's straightforward, a lot of interesting points.

Are we out of time already? No? OK.

**Ms Churley:** It would be interesting to the committee for you to just tell us what your recommendations are.

**Mr Pasquan:** OK. On page VIII, I've made some recommendations. Let me just mention that I believe there's a place for thousands of these windmills throughout Ontario, rural applications and larger varieties. It's not like I'm starting a whole new fuel regime or something; it's something that, over a period of time, there could be tens of thousands, perhaps hundreds of thousands, of these in Ontario alone for heating purposes.

**The Chair:** Maybe we could just go around and get some questions from the various members. Let's start with the NDP. We have about a minute and a half per caucus.

**Ms Churley:** Let me say that it's refreshing, from time to time, to have a private citizen come in, because mostly, with all due respect, we have big companies and organizations.

I find it an intriguing demonstration. This is, as I understand it from a quick read of this, a small project. I assume that what you would want to do is sell it for a farm to be self-sufficient, that kind of usage?

**Mr Pasquan:** Or a home somewhere remote, or a shed—any application.

**Ms Churley:** Have you sold any yet? Are some of these in use?

**Mr Pasquan:** No, I haven't. But it's only within the past two years that it's been sufficiently developed that it's now ready to market, and we're basically in a position where we'd like to get some orders.

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**Ms Churley:** So you're looking for opportunities and getting the word out that you have this. Have you hooked up with any of the wind power organizations out there?

**Mr Pasquan:** No, they don't think small.

**Ms Churley:** They think big, eh?

**Mr Pasquan:** That's right.

**Ms Churley:** Already we're there.

**Mr Pasquan:** Yes, that's right. They think giant, and they don't want to be bothered with mosquitoes like me.

**Mr O'Toole:** I commend you for your inventiveness and also your determination to educate people about some alternatives. As I understand this, I guess the key is that it's primarily for heating the house?

**Mr Pasquan:** Yes, that's correct.

**Mr O'Toole:** And that's the only application?

**Mr Pasquan:** Oh, no. It can be used for heating greenhouses or hog barns, all kinds of applications.

**Mr O'Toole:** So the churn heats the liquid, I gather, by—

**Mr Pasquan:** The shaft heats the—

**Mr O'Toole:** —churn—

**Mr Pasquan:** Yes, that's correct.

**Mr O'Toole:** —the liquid, friction occurs and starts to heat and you transfer that heat through some convection process to—

**Mr Pasquan:** The fluid heats up, and you take that into a radiator somewhere.

**Mr O'Toole:** A heat exchanger.

**Mr Pasquan:** Yes, a heat exchanger.

**Mr O'Toole:** What do you think a typical unit would cost? Just sort of speculate.

**Mr Pasquan:** On page VIII, I've said \$15,000 each.

**Mr O'Toole:** Have you spoken with other provinces at all on this?

**Mr Pasquan:** No. I'm involved with Saskatchewan. At this point I'm—

**The Chair:** Anybody else have any questions?

**Mr Ouellette:** How do you transfer the heat from the mill to the house? Is it through underground pipes?

**Mr Pasquan:** Yes.

**Mr Ouellette:** So you need electricity to—

**Mr Pasquan:** Oh, no. It's fluid in a pipe, OK?

**Mr Ouellette:** So the churning actually circulates the pump as well?

**Mr Pasquan:** No, you have a small amount of electricity to release the brake as well. It's a solenoid.

**Mr Ouellette:** Are you talking about the brake that spins it around or the brake that circulates it?

**Mr Pasquan:** They're not combined. The solenoid at the top releases the brake.

**Mr Ouellette:** And it stops.

**Mr Pasquan:** No, it's the reverse that happens. It's a spring-loaded brake. It's a fail-safe brake, and you need a solenoid on all the time to take the brake off and allow the windmill to operate. Some of the power that's going into the electronics and into that can then go into a circulation pump.

**The Chair:** OK, maybe I should move to Dr Bountrogianni.

**Mrs Bountrogianni:** Thank you very much for coming and presenting your invention. I must say that's it's the first time I've seen a video of something. It made me a little homesick for a certain Greek island. In recommendation number 3, you mention that the "Ontario government should commission an engineering and feasibility study of the viability of the wind power tower concept for urban locations."

**Mr Pasquan:** Yes, in fact the wind power tower is actually a high-rise building which could go up 600 to 800 feet, 250 feet in diameter with a series of these windmills at all levels. They could be used for pumping water, generating heat, producing hydrogen, whatever. The power tower could be made to go into downtown Toronto, for instance. You don't have the big, huge blades with the 10-mile kill radius, do you understand? You have a power tower which could generate 10 or 20 megawatts. There could be three or four of them in the city of Toronto. This is something else you might consider.

**Mrs Bountrogianni:** I was curious about what that meant. Thank you very much and thanks for coming.

**The Chair:** Thank you for your presentation. I'm intrigued with why it goes around. I understand an airplane wing and a propeller. It's intriguing; I would love to understand the aerodynamics. Anyway, I appreciate having you here this evening. It's neat to have an

inventor come before us and explain something he has on the drawing board, so to speak.

**Mr Pasquan:** It's been a pleasure.

## METHANEX CORP

**The Chair:** Our next presenter, and actually the last of the evening and the last of this round, but that doesn't mean the least by any means, is Don O'Connor of Methanex Corp. But you are running into a challenge with a tired committee right about now. We appreciate your coming.

**Mr Don O'Connor:** I flew all day, so I'm starting to fade too.

**The Chair:** For an organization, there are 20 minutes for a presentation and questions and answers afterwards. Please state your name, and you may go ahead.

**Mr O'Connor:** My name is Don O'Connor. I'm here representing Methanex Corp. I think the clerk has given you three handouts. I'll speak to the highlights of the typewritten one. There is much more detailed information in the other two handouts that you can look at at your leisure.

Methanex is the global leader in methanol manufacturing and marketing. We have plants located in Chile, New Zealand, Canada, the United States and Trinidad. We are the largest supplier and marketer of methanol to each of the major international markets. In the year 2000, roughly 24% of the world's methanol was marketed by Methanex. We are a public company—our shares trade on the Toronto Stock Exchange—and we are based in Vancouver, Canada.

Methanol is typically made from natural gas. It is a basic building block that is used for very many things including formaldehyde, acetic acid and a number of chemical intermediates. You might be aware of it as fondue fuel or as windshield washer fluid for your vehicle. It's also used to make MTBE, methyl tertiary butyl ether, which is a clean-burning gasoline additive. It's also considered to be a leading fuel for fuel cell operations.

Methanol can be made from renewable resources as well as natural gas. There's one commercial plant in Germany that uses waste biomass, and research on and demonstration of some of the individual processes that make up a biomass-to-methanol plant took place in Ontario in the 1970s and early 1980s. There were even business plans developed for commercial biomass-to-methanol plants, but most Canadian activity ceased when oil prices dropped in the mid-1980s.

Methanol has been used as a fuel in internal combustion engines from time to time over the past 20 years. In the early 1980s, up to 5% methanol was used in commercial gasoline in many parts of North America and Europe, including Ontario. It has been demonstrated as a fuel for diesel engines in bus applications in Canada and the United States. Later in the 1990s, M85, which was 85% methanol and 15% gasoline, which gets used in specially designed vehicles, was also demonstrated,



including one station here in Ontario. None of these past fuel applications made it. Most of them have ceased. There are very significant hurdles to overcome in introducing any new fuel or any new technology in the marketplace.

What we're looking at now for future applications is methanol as a fuel for fuel cells and also things like the possibility of methanol in high-efficiency co-gen gas turbines in remote areas around the world.

I'm sure you've heard a lot about fuel cells, so I won't go into an awful lot of detail. Basically, they convert chemical energy directly into electrical energy. Most, but not all, fuel cells require hydrogen to do that. We're interested in methanol from two different aspects: one as a carrier for hydrogen, and we'll talk about that a little more. But methanol and water, when you apply heat to them, produce hydrogen and carbon dioxide. There are also technologies being developed that take methanol and water and directly make electricity in a fuel cell without having to make hydrogen. That's called a direct methanol fuel cell. That technology is under development and making quite rapid progress.

Methanex is not in the fuel cell design business, but what we are working at is trying to help fuel cell technology companies commercialize their technology. We think that methanol fuel cells can be used to run vehicles and provide portable or stationary power for things like laptops and cellphones.

Why do we think that methanol is a good fuel for fuel cells? First of all it's a liquid. It's transported today around the world, much like gasoline and diesel fuel. It is liquid at normal temperatures and we can deliver methanol suitable for fuel cell applications essentially within 24 hours anywhere in the world today.

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Methanol fuel cell vehicles have the potential to reduce greenhouse gas emissions. Full lifecycle emission testing that we've done, modelling that we've done, indicates that in most areas of the world the greenhouse gas reduction is almost as large as natural gas to steam methane re-forming of hydrogen, which is considered sort of the leading likely commercial hydrogen for any purpose.

Fuel cell vehicles of course almost eliminate urban smog emissions like nitrogen oxide, carbon monoxide and non-methane organic gases. Methanol is also quite safe from an environmental perspective; it biodegrades very readily. It's cost-competitive. Historically, it's been priced less than the wholesale price of gasoline. Even accounting for fuel taxes and distribution costs, retailer margins and vehicle efficiencies, we think that methanol fuel cell vehicles can be less costly to run than gasoline internal combustion engines.

Methanol's great advantage from a re-formed fuel perspective is the re-forming process takes place at a low temperature—250 to 300 degrees Celsius—whereas with all other fuels we're looking at 700 to 900 degrees Celsius. Lower temperature means higher efficiencies, lower cost and smaller, more reliable systems. Because it

can be made from a number of different things, like natural gas and biomass, it extends the energy diversity, reduces the transportation sector's dependence on crude oil. We think it's particularly attractive for some off-grid applications. We can get methanol to places that aren't connected to the electrical grid or the natural gas distribution system.

Fuel cells are going to be quiet. We have the potential of the direct methanol fuel cells, which will take place at even lower temperatures than the re-formed methanol. We think that these methanol-powered fuel cells are going to be very convenient and very attractive to consumers.

Our strategy in trying to move methanol-powered fuel cells ahead is to work with some of the world's leading companies. We're working to implement safe handling and storage practices. We're developing suitable methanol fuel specifications for all fuel cell applications. We're working with governments, organizations around the world to ensure that methanol meets or exceeds existing and emerging regulations. We're working to ensure that there is a steady supply of competitively priced methanol and we're promoting methanol fuel cell technology by supporting demonstration programs.

Some of the activities we're involved in: the California Fuel Cell Partnership, which you heard about a few minutes ago; we have a methanol fuel cell alliance with BASF, BP, DaimlerChrysler, Statoil and Xcellsis which is looking at detailed studies and assessment of the issues associated with using methanol as a fuel. So we're looking at methanol production and distribution issues around the world, because our partners are global. We're looking at health and safety aspects. Methanol, like all conventional fuels, has inherent properties that may pose some health and safety risks. We're trying to quantify those and we're looking at things that can be done from a mitigation perspective as well. We're doing a lot of environmental fate modelling, trying to understand what might happen in the event of an accident and methanol does get released into the environment.

The one thing that's interesting is that methanol is produced naturally in the environment. We estimate that there's about 2.4 billion tonnes of methanol made by Mother Nature every year—almost 100 times as much as man makes—and it comes about from the natural decomposition process of biomass around the world.

We're looking at lifecycle emissions, carrying on with some of the work that Methanex has done, working on specifications, looking at the economics and commercialization. Some of our partners are in the retail petroleum business today. We're working with them so that they can understand what's involved in commercializing methanol as a fuel for fuel cell vehicles.

In Japan, we're working with Mitsubishi Corp and Mitsui, trying to promote the merits of methanol in Japan as the fuel of choice for our fuel cell vehicles. In North America, we're working with a small company called IdaTech that's manufacturing stationary fuel cell power units for home applications. Several of those have been

installed in homes in Oregon. We've been working with them on the supply of fuel to those, and we're looking at expanding that to 100 homes in the next short while.

We plan to be actively involved in the Canadian Transportation Fuel Cell Alliance. That's just getting underway in Canada with the federal government.

With all this activity, we're also aware that there are an awful lot of challenges that still remain. It is never easy for new technologies and new products to make it in the marketplace no matter how attractive they are to consumers and governments. It is always more difficult to displace existing products rather than introduce products that offer new services. We think fuel cells are not like cellphones or computers that gave new services to people. We are looking at fuel cells taking a longer time to commercialize. We're going to have to replace internal combustion engines or batteries or coal-fired power plants.

Governments need to consider strategic support for early adopters of these environmentally sound alternatives. This can take many different forms. Government can be an enthusiastic early adopter of some of these new technologies. We need fair and effective tax systems, although from a transportation perspective, methanol is quite attractively taxed in Ontario today so we don't have particular issues with that, unlike some other jurisdictions. We think governments can provide some assistance in modernizing and streamlining regulations that might have been written before some of these new inventions were ever even thought about, and governments can play a role in terms of financing some of the demonstrations. And there are other ways that governments can participate as well. These are only meant to be illustrative.

Based on the level of investment and commitment demonstrated by automakers and other stakeholders in the fuel cell industry, we believe that fuel cells are going to make a very significant impact in the world. When Ontario begins to receive the benefits of a cleaner environment, a sustainable, growing fuel cell manufacturing industry will depend to a large degree on the investment it makes in this exciting new industry.

With that, I'll be pleased to answer questions.

**The Chair:** We have about a minute and a half per caucus, starting with the government side.

**Mr Gilchrist:** Thank you very much for coming all this way and making the presentation. It's important that we hear from someone in your industry. We've heard from a wide range of manufacturers and different ideas. There's no doubt that when we're looking at both the short-term and long-term evolution from the status quo, we've got to make sure we have all the facts before us here. At some point we may very well go to you and ask for appropriate venues to actually see some of these various projects in play. In fact, perhaps I might simply ask you if you could supply to the clerk a detailed list of the venues that are utilizing some of the products you've mentioned in your presentation here, and particularly if you would recommend one over the others in terms of

the degree to which they've advanced and are approaching a degree of commercialization that we might emulate here in Ontario.

**Mr O'Connor:** OK.

**Mrs Bountrogianni:** Thank you for coming all this way. Under the health and safety section you mention ICE applications. What does ICE stand for?

**Mr O'Connor:** Internal combustion engine.

**Mrs Bountrogianni:** I'm not an engineer, so thank you for that.

**Mr O'Connor:** Sorry.

**The Chair:** It is a challenge for us, as politicians, to keep on top of some of the technology that comes before us.

**Mr O'Connor:** I appreciate that.

**Ms Churley:** Well, some of us pretend very well and some of us actually know what they're talking about, I suppose. At least they sound like it.

**The Chair:** On topic, please.

**Mr Gilchrist:** This is one time she doesn't name names.

**Ms Churley:** No, not now.

I don't claim to totally understand the technology in such a short term, but where did you come from today anyway?

**Mr O'Connor:** Vancouver.

**Ms Churley:** Oh, you flew in from Vancouver. I just wanted to thank you for this. This is a new presentation. We've had a lot of repeats today, but this is the first time, at least when I've been in the room, that we've heard about this one, so it's another one to take into consideration. Thank you very much.

**The Chair:** I'm getting a signal from Mr Ouellette. He'd like to ask you a question.

**Mr Ouellette:** Coming from Vancouver, you would get some, I would expect, so hopefully we can oblige with something of relevance. Maybe you can give us a bit of a breakdown of MTBE and the problems. Are you the company that is currently dealing with California over that issue and using this component in that?

**Mr O'Connor:** Methanex is suing the US government under NAFTA, yes.

**Mr Ouellette:** Maybe you could give the committee a brief breakdown of positions or what you are able to—we're well aware of what you can and cannot do when dealing within the courts, but knowing what's happening or the reasons obviously helps us in future discussions when we deal with MTBE or other similar additives.

**Mr O'Connor:** First of all methanol is not MTBE, so when we look at future applications of methanol getting into the environment, we're not dealing with the same issues as MTBE. Methanol degrades very readily. It's completely gone in maybe a week if it happens to be spilled into the environment.

**Mr Ouellette:** Is that into the air or into the ground?

**Mr O'Connor:** In soil or in groundwater it biodegrades very readily. MTBE does not biodegrade very readily so it is persistent in the environment. It gets into the groundwater and soil by a couple of different means.



One is leaking underground tanks and the other one is two-stroke engines—there are still many power boats running on reservoirs. Gasoline is not very soluble in water, so the 25% of fuel that goes into a two-stroke engine that comes out of the tailpipe uncombusted floats to the surface. When people take their drinking water from that same lake, they take it from the bottom, so historically the gasoline and the drinking water never mixed. MTBE is slightly soluble in water and so it does go all the way through the lake.

There's no question that MTBE in gasoline cleans up exhaust emissions, lowers unburned hydrocarbons, lowers carbon monoxide and has been a very valuable component in cleaning up the air in a lot of American cities. It does need to be handled properly. What people don't realize is that if MTBE leaked out of an underground source tank, gasoline also leaked out of the underground source tank. The one small advantage is that MTBE is very odiferous. You can smell it at very low concentrations. In groundwater it also causes some

separation from the gasoline. So you found out about leaking underground tanks earlier when there was MTBE in it than you would have if there was just gasoline and the first thing you picked up was benzene.

**Mr Ouellette:** I'd just like to say that I hope my colleagues realize that I wasn't taking shots at anyone except myself to make sure that the last presentation on the last day was something we can relate to.

**The Chair:** Thank you very much. We appreciate your coming all the way from Vancouver to present to us. An excellent presentation with good information.

The committee is now adjourned until 10 o'clock on September 26. If a meeting isn't necessary, we will let you know. Probably there will be a call for the sub-committee on the Monday or Tuesday, September 24 or 25, to look at issues prior to that meeting and decide whether that meeting indeed is necessary.

With that, the committee is adjourned. Have a safe trip home.

*The committee adjourned at 1954.*

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### SELECT COMMITTEE ON ALTERNATIVE FUEL SOURCES

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Mrs Marie Bountrogianni (Hamilton Mountain L)

    Mr James J. Bradley (St Catharines L)

    Ms Marilyn Churley (Toronto-Danforth ND)

    Mr Doug Galt (Northumberland PC)

    Mr Steve Gilchrist (Scarborough East / -Est PC)

    Mr John Hastings (Etobicoke North / -Nord PC)

    Mr John O'Toole (Durham PC)

    Mr Jerry J. Ouellette (Oshawa PC)

    Mr Ernie Parsons (Prince Edward-Hastings PC)

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## Legislative Assembly of Ontario

Second Session, 37<sup>th</sup> Parliament

## Assemblée législative de l'Ontario

Deuxième session, 37<sup>e</sup> législature

# Official Report of Debates (Hansard)

Wednesday 3 October 2001

# Journal des débats (Hansard)

Mercredi 3 octobre 2001

Select committee on  
alternative fuel sources

Committee business

Comité spécial des sources  
de carburants de remplacement

Travaux du comité



Chair: Doug Galt  
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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Wednesday 3 October 2001

Mercredi 3 octobre 2001

*The committee met at 1004 in room 228.*

## COMMITTEE BUSINESS

**The Chair (Mr Doug Galt):** I call the select committee on alternative fuel sources to order. We have an agenda before us, along with a memo from September 27 that we can look at. You should be aware that last Wednesday the subcommittee met and struggled with such items as travel, events and a few other items. We decided to put together a list, which is in the memo of September 27, for some thoughts and ideas that could be discussed here this morning.

The first one on the list is Monday versus Wednesday morning meetings. I asked for that particularly because at this time on Wednesday mornings, room 151 is tied up with another committee. I wanted committee members to comment on whether they want to have 151 and use it on Monday mornings. Maybe I could do a little negotiating with the other Chair, but I have good reason to believe that probably I wouldn't win on those negotiations. I guess they have squatter's rights, being there first. It is certainly something we could try, or maybe something we could discuss at this point in time.

**Mrs Marie Bountrogianni (Hamilton Mountain):** I prefer Wednesday mornings. I understand my colleague Jim Bradley can't make Wednesday mornings because he chairs another committee. There he is. OK.

**Mr James J. Bradley (St Catharines):** The committee's not sitting this morning.

**Mrs Bountrogianni:** As I was saying, I personally prefer Wednesday mornings. But if the reason is for my colleague to be able to be here, I'll agree to Monday mornings. It has nothing to do with the room. It doesn't make any difference to me what room we're in.

**The Chair:** What's being discussed, Mr Bradley, is the timing of the meetings and whether this committee rates using 151 or your committee, which is already there, rates keeping it, or whether we should be looking at a different time. You may like to make some comments at this point in time.

**Mr Bradley:** What may happen—part of it is a result of a bit of apprehensiveness on the part of people who travel, and I was discussing this with the committee officials—is that 151, the Amethyst Room, is the only room that can be used for teleconferencing, and we may well be doing more people by teleconferencing than ever

before because it's much easier. For instance, if they're from Thunder Bay or even North Bay and so on, a lot of people now are more apprehensive about flying. It also saves money. Our committee did discuss doing some interviews by teleconferencing, and I suspect we are going to be using more of that, which is why it would be good for us to be able to use that room.

**The Chair:** I think you have a good point on teleconferencing. Certainly I as a member, and certainly as Chair here, promote that idea. It's taking advantage of modern technology, and this committee is striking an awful lot of interest in the public. I'm at the committee's—whatever their preferences are.

**Ms Marilyn Churley (Toronto-Danforth):** I think I've said before, and I'll say for the record, that I'm fine with Monday morning meetings. It is a little difficult, because after the Friday and the weekend there's a lot waiting for us in our offices on Monday mornings. But I recognize it's a problem for Mr Bradley and for the committee. I also take the point that there is interest in this, and in that case it would make sense if we could get the room on Monday mornings.

Can I ask a question? At this point, do we know how frequently we will be meeting?

**The Chair:** To be honest, looking at some of the submissions we have and some of the things that maybe we should be doing, I expect at least until Christmas. It would be my guess at this point in time that for the next nine weeks we are going to be meeting weekly.

**Ms Churley:** And no more than that, however.

**The Chair:** I expect that after Christmas there will probably be full committee travel. But again, it's a committee decision that we will be talking about this morning.

The other thing that hasn't been brought up in this discussion is, if we meet on Monday mornings, then I expect Mr Bradley would be able to join us, whereas on Wednesday mornings, he can't. He can always get a substitute, and he's very willing and has offered to do that and isn't objecting to not being able to get to every meeting. But there is that advantage.

**Mr Bradley:** I'm quite flexible in terms of Monday morning, and I'm also flexible in terms of trying to accommodate the committee. You cannot have the committee stop because of one person. Our committee doesn't sit every week, but it sits most weeks at that time. But you can't let one person block the whole committee.

I'm willing to accommodate whatever is convenient for the committee.

1010

**The Chair:** I think it's a total package. I think Mr Hastings had his hand up. Did you have your hand up a moment ago, John?

**Mr John Hastings (Etobicoke North):** No. I'll wait.

**The Chair:** You're going to speak later?

**Mr Hastings:** Yes.

**Ms Churley:** I was ready to make a motion that we change our meetings from Wednesday to Monday mornings, but out of courtesy to members from the Tory caucus, some of whom are arriving, perhaps it would be appropriate to hear from them.

**The Chair:** Yes, I would prefer that you hold the motion until we can have some discussion and query all of them.

**Mr Ernie Parsons (Prince Edward-Hastings):** I think it is quite possible that we may want to do some teleconferencing also, given this topic. I recommend we move to Mondays.

**The Chair:** So what I'm hearing on the opposition side is that Monday is OK. It's not exactly the preference, but it is working out better. Can I swing over to the government? Mr O'Toole or Mr Hastings?

**Mr Hastings:** I would think some Mondays may be OK. I think what we should try to do is accommodate everybody's needs and possibly, instead of just Mondays, switch to Wednesdays every other week or once a month, given what happens in the offices of some members. Also, they're coming from out of town. Instead of a beeline to Mondays, try three out of four Mondays or two out of four. That makes it a little—it accommodates people like Ernie, who has to come in from eastern Ontario.

**The Chair:** With that thought, possibly a week when Mr Bradley's committee is not meeting might be when we could meet on Wednesday.

**Ms Churley:** I hate to complicate this, but I'm sure everybody has the same situation I do. I am very busy juggling a lot of different meetings. If I don't know what my schedule is going to be, then it is difficult—

**The Chair:** Way in advance.

**Ms Churley:** Yes. It is difficult for me to plan other things. I recognize the spirit of compromise, but I think it would be difficult for me to accommodate that.

**Mr Hastings:** To what extent could we get something ready over the next four weeks, or is that a little difficult yet?

**The Chair:** Very possibly it could be laid out for the next nine weeks. Probably Mr Bradley has a good feeling as to when they are or are not going to meet.

**Mr John O'Toole (Durham):** I would like to accommodate Ms Churley, being the single member from the party—unless you have an alternate who's keeping abreast of the issues. To me, I'm flexible. I'm here every day anyway, so what's the problem?

**The Chair:** Maybe we can ask Mr Gilchrist his opinion.

**Mr O'Toole:** Mr Gilchrist would probably disagree with everyone.

**The Chair:** We've been going around the table, Mr Gilchrist, checking when this committee might want to meet. We've been getting support for Monday mornings because of the difficulties—

**Mr Steve Gilchrist (Scarborough East):** I'll cast a dissenting vote. I prefer Wednesdays.

**The Chair:** But is Monday impossible?

**Mr Gilchrist:** It's not impossible, no.

**The Chair:** Mr Bradley could join us if it's Mondays, and we'd also have access to the Amethyst Room, which we don't have on Wednesdays.

**Mr Gilchrist:** I personally don't think it's important. Hansard records us the same either way.

**The Chair:** At this point in time I'd entertain a motion if somebody would like to put a motion on the floor.

**Mr Gilchrist:** I should put on the record that Mr Ouellette is violently opposed to Mondays, if you're taking a vote.

**Ms Churley:** I would hope we wouldn't have to take a vote on this and have some people—

**The Chair:** Could we wait just a little bit and come back to this issue?

**Ms Churley:** I think that's appropriate. I'm hoping we can reach a compromise on this.

**The Chair:** I like your comment. I appreciate that, and that's how I'd like to arrive at it as well.

Could we move on to the second item, the committee's work plan, and discussion of the memo we put together on September 27 and circulated? Looking forward to comments on some of the things we mentioned, everything from a visit to the Independent Electricity Market Operator—that could be one of our meetings, that we go out there to see how that's controlled. Any thoughts on what we've put down on paper? Do you want additional research? Some of the thinking I've done is that I'd like to see a researcher hired who would be specific to development of policy as to what has worked well in other jurisdictions to encourage the use of green energies, alternate fuels, whatever term you'd like to use.

**Ms Churley:** I would support that. I went to the Ontario Environment Network meeting to talk about the committee on the weekend, and we had an interesting discussion. One of the recommendations from that group, recognizing that looking at some technology is important, is that there is concern that there are certain things that we know need to be in place now that shouldn't wait. Their recommendation is that we identify what some of those things are—and they've made suggestions—and look at recommending to the government that they be put in place sooner than later while we investigate some of the other technologies and economic instruments.

I would support having a researcher. If we do that, then I think we can get very specific about the areas we need that researcher to work on immediately.

**The Chair:** Other comments on research?

**Mr Gilchrist:** Like you, Chair, I had an opportunity to have an interview with this year's crop of new parlia-



mentary interns. I think there may be an opportunity for us to kill two birds with one stone and participate in that program. Give the interns, or at least some of the interns—I guess there are up to eight available—the opportunity to participate in this very significant initiative at the same time as we don't actually spend any money, or minimal. I would certainly be comfortable taking them around to site visits and things like that. But it seems to me we have a ready supply of eager and talented folks every year who offer their services as part of the parliamentary intern program. I think that in this case, because an equal number are offered to opposition members and to government members for each half of the year, there might actually be an opportunity to get more than one intern. As to the assignment, I certainly agree that would be a quite appropriate first task for any researcher we hire.

**The Chair:** That's assuming that one of the interns or many of the interns might want to come with the nine of us who sit at this table.

**Mr Gilchrist:** I think we'll know very shortly.

**The Chair:** I'm being a little facetious.

**Mr Gilchrist:** The good news is that I think they have to make their decision this week.

**The Chair:** Would you consider then that we hire a lead researcher with whom they work?

**Mr Gilchrist:** I don't have a problem with that.

**Ms Churley:** That's what I wanted to say. I don't know who they're going to pick, but I think this is a complex enough and large enough issue, and in terms of not getting bogged down here, we need a lead researcher who has some knowledge in this area. So I would recommend that. If any of us gets an intern and they're interested in working on this, then that's an added bonus.

**The Chair:** Other comments on research? It sounds like everybody's comfortable with heading in that direction.

**Dr Bob Gardner:** I think the key thing, from the research point of view, is that if the committee decides what areas it is going to focus on, then we can certainly advise you on what kind of specialized consultant you may wish to hire or what kind of additional expertise you do need. I think you're still just that stage away from who you need to get working for you.

**The Chair:** We might be getting the cart a little before the horse. We need to do a little scoping. Generally what I'm hearing around the table is that we don't need research on fuel cells, alcohol production—the technical aspects—but on policy. We have a general feeling that way. Now we need to scope which areas of policy we should be directing the researcher to look at, OK?

**Mr Gilchrist:** I think you capture it all by issuing the challenge to assess what every other jurisdiction in the world has done to deal with the issues relating to the burning of fossil fuels. It really is no more complex than that. That will, by jurisdiction, lead the researcher in any number of different directions no doubt. But it seems to me that it is a very simple thing to encapsulate what the committee is looking for under that heading. I agree with

you that we don't need somebody researching science. We've got the companies themselves, who can supply us with all those details. I think our research staff will do an excellent job of compiling an executive summary of that. But in terms of canvassing every American state, every Canadian province, every other country in the industrialized world, to just get a snapshot of what they've done, I think that's a fairly simple task; it may have a lot of work, but the concept and the questions you posed would be relatively focused.

#### 1020

**The Chair:** That was kind of along my thinking to begin with. If the committee prefers a scope, so be it.

I think the committee spoke a while ago on a motion not to limit what we look at, and it was waste energy incineration. There was a motion, as I remember, that was defeated—I don't mean to be bringing it up, but what I'm coming around to is, that was the committee's opinion, to keep it wide open and look at everything. The mandate is there of getting away from fossil fuels as much as we can. If we want to scope it more, I'm open.

**Mr Hastings:** Whomever we hire in the policy area, they should certainly have some kind of a financial background from a policy perspective at least in the area of tax treatment, because most of these alternative fuel sources usually have driving them some sort of a sales tax exemption at the consumer retail side or they have some kind of a tax incentive at the other end in the production scale.

In my estimation, we need somebody who can look at existing countries and states and determine where they have applied tax treatment of an alternative fuel or technology, whatever that would be, that we have a person who would make good recommendations in that area based on what he or she has gleaned from the experience of these other places, what has worked in these other places after three or five years and what has not worked. So it's not just the announcement of a policy or the recommendation; you have some calculations behind it financially, cost-wise and what were the benefits of the other side.

**The Chair:** Very much so. I couldn't agree with those comments more.

**Mrs Bountrogianni:** I'd like to support Mr Hastings's concept and also support Mr Gilchrist's reminder to us that we did not have a limit to this committee's scope, that we did want to search and find every possibility at this point. We were given that mandate and there was a reason that we were given that mandate.

The other thing is, when we do start to focus more on process—not necessarily substance but process—I think the interns, if they're interested, would be exceptionally useful for assisting in the summaries of individual members' reports, for example, conference proceedings, to assist in gleaning out what is relevant in conference proceedings.

Just as a matter of information, Mr Hastings, in November—and I don't know when we will be travelling at this point—there's a two-day conference in Brussels

which looks at just that, looks at the financial as well as scientific histories of trying to apply these new sources of energy. The information is out there, and I agree we need to hire someone who can really recognize what's relevant and not relevant and what's applicable to Canada and not applicable to Canada.

**The Chair:** Anyone else?

**Mr O'Toole:** At the risk of being repetitive, I think Mr Hastings touched on a very important part of it. Most of these initiatives will require some commitment in tax treatment at whatever level. It could arguably be at the municipal assessment level, it could be in tax subsidies at the provincial level, if you want to call them directly that, and at the federal level. I think that's a very important point, because all policies at the end of the day will end up in money, no question about it.

It also addresses, to some extent, the issue we've all talked about, which is full-cost pricing. Let's look at what the real cost is when we consider the current forms of generation, because really it isn't a full-cost pricing model. In my view, we had all somewhat arrived at that point.

I would like to emphasize, if we were to hire a specific researcher who's highly specialized in the finance and tax policy area, looking specifically at generation capacity—it's a huge issue in terms of the economy and stable pricing and transforming the generation side from the infrastructure that's already in place. If you replace it, then you have to write off the current capacity, whether it's nuclear or whatever. Those are costs to the government as well of writing off a stranded debt technically.

It's probably the most important area for me. I am in the Ministry of Finance. Not that I know anything about this particular issue, but I would expect that most of that stuff would arrive there to say, OK, is this going to be each of us as a committee has recommendations, and not being partisan, could bring that forward and see what the government's prepared to do? Without that, I don't think government can firmly assess, and we shouldn't bring back frivolous recommendations. At the risk of going on, that's for sure: a top adviser.

**Ms Churley:** I generally support that. At the risk of bringing up a contentious issue again, I only say this because I get concerned about the scope of this and the time frame we have and that we don't get bogged down.

I want to point out to people, and we shouldn't forget this—and I believe in the document our researcher pointed this out—there are experts here in Toronto and in Ontario who have been working in this area for a number of years, and we don't need to reinvent the wheel in some cases. Perhaps what we should think about as a first stage—I tried to think through for the meeting today—is trying to find some way to not scope it but to make sure we don't get bogged down, because it's so complex, so many issues and technologies. There are players and people who have been lobbying all governments over the past years and are up to speed, up to date on technologies and economic instruments and what other countries are doing.

That's not to say we shouldn't go to some conferences once we figure out which ones are the most important, but one of the first things we need to do is figure out specifically now who we should be talking to here so that we can make short-term recommendations to the government. For instance, it may well be that energy conservation and efficiency should be something that we don't wait on. We don't have to do a lot of research on that. It's got to be done now. That's where I'm coming from. I'm really concerned that we're going to get bogged down.

**The Chair:** We have a concern as well to obtain a lead researcher who might work with some of our interns. It's going to take three to four weeks probably to put out a request for a proposal and find someone. That's going to put us at least at the end of October. I think there is some urgency to get on with it, and as I remember, we have in the budget of this committee approximately \$50,000 for research. It's in that ballpark anyway. I think I am hearing a common message that yes, there's some scoping necessary but, on the other hand, we need to be looking at as many of the instruments as possible to get on with green energy.

**Mrs Bountrogianni:** The reason I was really excited when I was put on this committee was I thought it would be non-partisan, it would be professional, we would do this job right, we would gather information like professionals, like scientists, like economists, and politics would come second to all of that. I think to pre-empt that and have an early report before we do the job right goes against the mandate of this committee, and I would not support that.

Our report is due by May. I think that is what we should do and we should have an excellent report. We should not leave anything unturned. Every professional team that works on these issues does its homework, does its research, has in the appendix a huge background of all of the research, everything, all of the conferences that either have been referred to or attended. I think we should really stick to that original plan.

**Mr Bradley:** Of the parameters we're looking at with each of these options—and John has identified one that's extremely important—it's quite obvious what we look at. First of all, does the energy work? In other words, does this alternative form of energy produce energy that's reasonable and good for us to use or is it something that's 25 years off or perhaps never? The second, is it at least environmentally benign, if not environmentally desirable, and the third, how much does it cost?

1030

I think John O'Toole's desire to see the full cost of all these options is very important. I just pick this as an example, and John would know better than probably anybody, representing the riding he does: Ontario Hydro for years portrayed nuclear energy as being very good, and it produced a lot of electricity in this province. There was never, in my view, a real accounting of how much that costs down the line. Maybe even if you knew the cost you would still say, "Yes, it is worth it," and you



would proceed with it. But I think John identifies something we have to always look at: what is the true cost of everything? Then sometimes we will subsidize that either through a tax concession that John Hastings mentions or perhaps a direct subsidy. A lot of these things won't get off the ground, as John has pointed out, unless you have some kind of tax regime which is going to be an incentive for them to get off the ground. Otherwise they'll stay where they are now. We have to determine in our final report whether it is worth giving a tax concession to a particular endeavour, because you can't just give them to everybody; it has to show some promise. I think getting a person who knows that tax field well and what has worked and what hasn't, what criteria you use to give a tax concession, would be very valuable, to have a person, whoever we get, who has some kind of experience in that regard.

**The Chair:** I think we've had a pretty good discussion here. I think I get a general feeling. If I could just maybe try to move along by requesting that somebody might put on the table a motion, or I would entertain a motion along the line that the subcommittee be directed to advertise, to interview and to select a candidate who would be then recommended to the full committee. Would anybody entertain such a motion?

**Mrs Bountrogianni:** You said it better than I could, but I'd like to make a motion.

**Mr O'Toole:** Just on that, what are we advertising for?

**The Chair:** A researcher to look into policy.

**Mr O'Toole:** Have we defined what kind of researcher?

**Dr Gardner:** If I may, Mr Chair, as I understand it, what you're looking for is specialized research not so much on the technology of these particular energies, but the first question is whether or not they actually will work here. The second question is, how have they worked in other comparable jurisdictions? There you're looking for some public policy analysis. The third question is fiscal: what scheme of tax incentives or other forms of fiscal policy have supported these different energies? That may very well require different expertise. What I would propose is that we go away and work up a work plan for the Chair and the subcommittee on how to find such people. It may be one firm, it may be a couple of firms.

My understanding of the deliverables to the committee would be a report or a series of reports canvassing those issues, probably combined with briefings. You will want to talk to these people, I imagine, and an early briefing might make some sense to help make sure they understand what scope you want. You want to do this at the end of this year? Would I be hearing that right? So you want this fairly early on.

**Mr Hastings:** November 8. We should have the person hired, hopefully, and the ads out and the interviews completed by whoever, the subcommittee I would imagine, and have our candidate, whoever he or she is, by no later than November 8, in my estimation. It is

going to take them another month, roughly, to get acclimatized to us, the issues, and whoever you might get, as Steve says, from the intern program to assist in that capacity.

**Dr Gardner:** We will shoot for that. We will say within a month we will have somebody on board. With a little luck, we will be looking for experienced consultants who can get up to speed very quickly and know how to come in and do this kind of work.

If I may, on the second question of the interns, I actually had a similar idea to Mr Gilchrist's. Our office and the clerks jointly coordinate the intern program. I see the interns as part of their orientation. One of them actually has public policy experience and interest in technology. I floated the idea with the organizers of the program of attaching an intern to this committee. They can't do that because of the nature of the program. You folks make a pitch to get the interns in your offices. What I would then suggest is that we do the coordination of those interns out of here in terms of your committee work so that we have a handle on all the stuff coming into this process.

**Mr O'Toole:** I just have two points. These aren't on the resolution before us. The report dates I saw in one of the votes that we took here were November. I think they're premature. I tend to agree with Mrs Bountrogianni in terms of the timing. I don't see the draft report showing up much before January. Given the things we talked about, that would be very ambitious. January you get a draft format. I'm sure we are shaping it now with all the input. That would give the researcher the month or so to work on not just becoming familiar but analyzing. The previous resolution that was passed seems to be out of date to me, because they talked about having a report in November.

**The Chair:** Interim.

**Mr O'Toole:** Interim report. That's way too premature. We've got to have something ready. If you look at timelines, May is the budget, so you've got to have it done by March if there are fiscal implications and there's going to be an initial response. I'd say that February should be pretty solid. We could then present it—not to the House in May—whenever you want to present it, but it could be there in draft form probably by March.

**The Chair:** The thinking was that we have a pretty good summary in front of us right now and that could be modified into an interim report. That wouldn't take too much modifying. That was the thinking once upon a time. Ms Churley, if we can stick to the motion.

**Ms Churley:** Yes, I'm speaking to it. Is that what you were speaking to here? I wanted to speak to this issue.

**The Chair:** I'm trying to pull it back.

**Ms Churley:** OK. I can wait.

**The Chair:** Can we just get this dealt with, this research. We will incorporate into the motion the three points that were made as to—

**Mr Gilchrist:** Except, before you cut off debate on that, the only critique I would have, Bob, is that your opening part was about actually assessing the technology.

I tend to agree with the comments made opposite earlier in the debate here today that that might not be all that appropriate. It might be duplicative to ask somebody to do that. I think at the same time as you canvass the jurisdictions about what they've done, the very same phone call will elicit the information of what it cost them to do that. If you call California, I'm sure they would be able to tell you the benefits of setting up their different air quality branches, but they could also tell you what the budget was to do that and what the grants have been for solar installations and wind installations.

I don't disagree that it might be difficult to find all of the expertise under one roof to assess what you've then pulled back in terms of information. I'm wondering, though, whether or not we'd be better off to look at one entity that does the actual soliciting of the information and then maybe as a secondary process if you need to bring someone with financial expertise in to judge that, as opposed to having both of them running up phone bills to California to ask related questions to the same people. I'll leave that; you've got far more expertise in that area. I think we will find a heck of a lot of overlap in terms of the source of the information. What's done with that information back here may diverge into two different streams.

**The Chair:** A couple more comments? We are just putting this into better verbiage here.

**Mr Parsons:** Speaking to the motion about whom we require to assist us, it is easy to make energy of any sort. We've seen that demonstrated. The challenge is to make energy economically. There's a saying I like that says, "If you want to truly understand something, try to change it." Each of the groups that has met with us has given us recommendations as to what to do to make its energy viable. But I believe there's a wonderful interwoven fabric of the energy supplies, and we can't have one in isolation.

1040

I do have a sense that Europe has faced these challenges before us. For me, the issue is not technical, the issue is financial. Finance isn't the only thing that will make energies viable, but financial is probably what we can do to make the energy viable. From my viewpoint, I would like someone to analyze what has been done financially. I don't want to reinvent the wheel. The suggestions given to us may or may not be viable from the groups, but if they have been tried somewhere, let's see how they work. I'm endorsing a financial.

**The Chair:** Basically I see it as financial. There may be other policy instruments that may help and we don't want their hands totally tied.

**Mr Hastings:** I would suggest that the research people use some Web sites for advertising in terms of the timeline. There's one like careerbuilder.com, which has a lot of technical policy people looking for positions. There are others.

**Dr Gardner:** Yes, we'll do that. Thank you.

**Mr Hastings:** That might speed things up if you've got a timeline of mid-November, early November.

**The Chair:** Dr Bountrogianni, was your motion along the line that the Chair, along with the subcommittee members, be authorized to hire an independent researcher and be authorized to conduct interviews and select the successful candidate and that the legislative research staff, along with the clerk of the committee, will suggest possible candidates by area of expertise?

**Mrs Bountrogianni:** That sounds good to me, Chair. Do we need in this motion to also include the comments from the members on the background of that person at all or do we leave that to the subcommittee?

**The Chair:** Research has heard the comments from here. It just makes the motion too long; select a candidate that will be recommended to the committee, if the committee's in charge.

**Mrs Bountrogianni:** I made a wonderful motion.

**The Chair:** Further discussion? Will we have a vote and move on? Those in favour? Those opposed? Motion carried.

We were talking about timing of meetings. Generally, people would prefer Wednesday, but recognizing that Mr Bradley can't attend then and recognizing room 151 is not available then, I think it's down to only Mr Gilchrist who would really prefer Wednesday, but we haven't heard from Mr Ouellette. Everyone else is quite supportive of moving to Monday so that we have the Amethyst Room, as well as having Mr Bradley with us.

**Mr Jerry J. Ouellette (Oshawa):** I wouldn't be supporting Monday at all.

**The Chair:** What would you support?

**Mr Ouellette:** Wednesday.

**The Chair:** In spite of the fact that Mr Bradley can't be with us and in spite of the fact we're in a different room?

**Mr Ouellette:** I'm on the same committee. I would support Wednesday, unless there's another time through the week, but Monday mornings, no.

**Interjection:** What about Friday?

**Mr Bradley:** As I indicated, I am most willing to accommodate the committee. In other words, I don't think the committee's work should stop because I am not at the committee meeting all of the time. I can have a substitute. I really appreciate the fact that you have endeavoured to look at other times. I know how busy schedules are for members, and the government agencies committee doesn't sit every Wednesday. It sits probably most Wednesdays but not every Wednesday. I am most willing to accommodate whatever's best for the majority of the committee. I don't think you should twist in the wind simply to accommodate me.

**Mr Gilchrist:** Could I offer a compromise? For meetings such as this one, if I may typify as the routine business of the committee, room 151 obviously is of minimal interest, and maybe those days we proceed as we had originally voted, on the Wednesday. However, there is a question being posed in the sheet about having further public hearings. As an exception, if we are holding that sort of meeting of the committee, I would be prepared—and I don't know about Mr Ouellette—to



change my schedule those weeks to be able to meet in 151 on Monday and those, I think you would find obviously, Mr Bradley, are the meetings we all would have a greater interest in attending and having televised. Can I offer that as a compromise?

**Mr Bradley:** That's fine with me. As I say, I'm very willing to accommodate the committee in whatever way. Whatever you see fit, I'm prepared to live with.

**The Chair:** Similarly, when the other committee is not using 151, those might also be good days to have delegations come in.

**Mr O'Toole:** I agree. I think that's what we're trying to find: the best solution. We also want this committee's work to be open, so in that respect this isn't essentially interesting to the public, but I would agree with what Steve has said and others have said as well.

I just want to bring one point up. This may not be completely relevant to the question, but it is in my view. As government members, we're required to participate in lots of different things, specifically votes. Any of our attendance here is very much an important requirement, and by that I mean any travel or committee work outside of the Legislature that is the will of the committee, I suppose even in the terms of reference, but at the end of the day, I really can't go anywhere.

**The Chair:** We'll get into that under events.

**Mr O'Toole:** The point is that I want it responded to because conferences aside—

**The Chair:** OK, but we're on a different topic right now and I want to get this other topic—

**Mr O'Toole:** It's fine for the opposition. You don't have to win the votes. We have to.

**The Chair:** That's another topic.

**Ms Churley:** Well, isn't that simple?

**Mr O'Toole:** That's pretty blunt, Marilyn.

**The Chair:** If I can just have order. The message I'm hearing is, if there are delegations coming, which are of more interest, we look to either days when Mr Bradley's committee is not meeting or we move those days to Monday. The rest of the time we'll meet on Wednesday in a room such as this. Is that satisfactory, Mr Ouellette?

**Mr Ouellette:** Monday afternoons: is that what we're speaking about?

**The Chair:** I have House duties.

**Mr Ouellette:** Monday afternoons I don't have a problem with.

**Ms Churley:** Monday afternoon might work better.

**Mr Ouellette:** Monday afternoons are fine by me.

**Mr Gilchrist:** As the Chair of one of the committees that would normally meet, I could certainly make sure that general government accommodates the schedule.

**The Chair:** That's an alternative.

**Mr Hastings:** Here's another alternative for you, Doug, if you want. How many members here are sitting on a committee on Thursdays? Which one?

**Mr Ouellette:** Thursday afternoons?

**Mr Hastings:** Thursday mornings, who sits on a committee?

*Interjections.*

**Mr Hastings:** Public accounts is—  
*Interjections.*

**Mr Hastings:** I'm sure I can get a sub or a float, and use the odd Thursday as a possibility.

**Ms Churley:** Thursday morning or afternoon?

**Mr Hastings:** In the morning, Marilyn.

**The Chair:** Is Monday afternoon a problem? I can just go to the House leader or the whip or whatever and try and get us switched because of this. Is that a problem for anyone else, Monday afternoon?

**Mr Parsons:** It's also my assigned time in the House.

**The Chair:** If you and I can get a switch, we'd be—

**Mr Gilchrist:** You're now paired up.

**Ms Churley:** It's mine too, but I would try to—

*Interjections.*

**The Chair:** Sorry?

**Mr Hastings:** I'm on House duty Monday too.

**Ms Churley:** So am I.

**Mr Hastings:** You're looking at four.

**Ms Churley:** And you too? Five.

**Mr Hastings:** It may be a possibility.

**The Chair:** Let's look further. What about Tuesday afternoon?

**Ms Bountrogianni:** No, that's my House duty day.

**The Chair:** I am free that day.

*Interjections.*

**The Chair:** Monday afternoon is taken by another committee. So we're into the same problem. What about Tuesday afternoon? What does that bring?

**Ms Bountrogianni:** That's difficult.

**Mr O'Toole:** Estimates is on Tuesday and Wednesday.

**Clerk of the Committee (Ms Tonia Grannum):** Justice sits on Monday and Tuesday.

**The Chair:** How about Sunday afternoon?

**Mr Bradley:** At your place.

**Mr Ouellette:** Why don't we as a group come forward and discuss, first of all, how many meetings we're going to have, possibly, and when a meeting is planned in advanced, send out the options that are available when the maximum number can be in attendance?

**The Chair:** As discussed earlier, we're going to be meeting every week from now till Christmas. We have a pile of stuff to cover. I'm just trying to get through this agenda. It looks like it's going to take three meetings, just on this agenda. We've got two other serious things before we adjourn today.

**Ms Churley:** If I may, Mr Chair, we're not going to find a perfect time, so perhaps a compromise should be as Mr Gilchrist and others suggested, that the public hearing meetings be held on Monday afternoon—

**The Chair:** Or Wednesday mornings when the room is free.

**Ms Churley:** Wednesday mornings for routine meetings, such as this. I think we have too many people on House duty on Monday afternoons; five people. We're not going to find any time where we all can attend. That is the reality.

**Mr Gilchrist:** So if the issue is room 151, we can find time if that's available; the majority of the committee can sit.

**The Chair:** I think we'll move on. The general message I'm picking up here is we'll meet Wednesday 10 to 12. If we are having delegations coming in and it is of real interest, we either move it to Monday morning or we move it to a Wednesday when Mr Bradley's committee is not meeting.

Can we move on? Surely to goodness we can have some flexibility. I'd ask everyone to be here. Now that we are providing this much flexibility, I'm going to start the meetings at 10 o'clock, not five seconds after. They're going to start at 10 o'clock and I want a quorum here. I've been as flexible as I possibly can. I've held off starting these too many times.

1050

**Clerk of the Committee:** But when finance sits in the morning, when they start prebudget meetings—

**Mr Hastings:** But that won't be until January. Don't forget, Doug, you might be able to squeeze in one or two Thursday mornings in the next nine weeks. It is a possibility.

**The Chair:** Sure, and we'll use that flexibility. May we move along? The next one we must discuss at this meeting has to do with attendance at conferences and travel. That was part of what Mr O'Toole was mentioning earlier. The other one we must talk about this morning, and it shouldn't take very long, is events to make the public aware of what the committee is doing. I think we can move that one through quite quickly.

The one that may be a bit difficult—and the subcommittee directed it back here—has to do with travel. We are into a bit of an awkward one. Some committee members have lined up certain conferences and by holding off they're going to have to pay two or three times as much for tickets.

**Ms Churley:** I raised this at the subcommittee meeting. We had a discussion, referred to the clerk, about what we could and couldn't do under the existing rules. We are trying to work out how individuals can travel under the existing rules. The clerk told us that normally—and perhaps she can tell the committee—unless there is different information, there's a whole process in place where clerks are supposed to be involved and things like that. I don't know if the clerk has an update on that whole question.

**Clerk of the Committee:** We've had some discussion in the clerks' department. If the committee chooses to do so, by motion, they have to identify who is travelling, to where, and reporting back to the committee. All findings would have to be reported back to the full committee.

**Ms Churley:** In that case, as you, the Chair, authorize people to go to specific conferences or events, as passed by motion here, then it would just be a simple matter of bringing it back here and passing, by motion, that that person is going. OK. So it seems that particular problem has been solved.

**The Chair:** I'd feel a lot more comfortable if the committee voted on it.

**Ms Churley:** So would I.

**The Chair:** Some may feel that I'm not carrying out that original motion, but it's going to be one heck of a lot more comfortable. If they're going to Timbuktu, Ontario, Quebec or Amsterdam, they're going to this conference for this purpose, and there will be a report from that.

**Mr O'Toole:** Without dwelling on this—and I don't know how to frame it and phrase it without perhaps sounding overly important; that is not my intention—

**The Chair:** We know you're pretty important, Mr O'Toole.

**Mr O'Toole:** —but as a government member, I have more recently been required to attend where I had other very pressing things to do. I could schedule things even in the next few days. You and I know the story: the mayor and all of these people are going to a specific site, it's all to do with energy, it's all been arranged, there's a full agenda, all the contacts, and I could easily go on that trip. But I can't go on that trip because of a commitment to the House.

We don't have pairing here like they do at the federal House. Pairing doesn't count. For instance, if there's a vote and I'm not there, even if I was paired with Ernie, it doesn't mean anything. If they have 34 and we have 33, we lose. Pairing doesn't work unless we get specific rules. These are procedural issues, as Mr Bradley would know. These conferences are at specific times. It looked to me like the travel is all supposed to be finished by February if it is to be of any contribution to this process. I think I've made my point. I'm quite concerned that I don't run my own life with respect to when I'm here. When the House is in session, I'm required to be available, period. That's the end of it.

**The Chair:** Twinning may be the answer.

**Mr O'Toole:** Twinning doesn't count.

**Mrs Bountrogianni:** Unless it has changed since the last time we met, we have not held a deadline for when people can go to conferences. I understand that some conferences are when the House is sitting, but there are others when the House isn't sitting. If that can assist you in your discomfort, you can go to the conferences when the House isn't sitting. I know you don't want to go during constituency week because you want to get re-elected—you made that clear last time, and that's fair—but I think it is up to us. Some of us aren't going to go anywhere for personal reasons as well, and some of us are not going to go because of the reason you cited. Unless I'm wrong, do we still not have the flexibility of travelling in January if that's what we choose?

**The Chair:** If I can maybe just try and clarify what Mr O'Toole's concern is—and it happens in some other governments in committees such as this—it's where people pair up. If I'm away, then we have a ladies' and gentlemen's agreement that both are away when it comes to votes. I think that's what he's suggesting. I don't know in this committee what might or might not match up, whether you're comfortable with doing that or not.



**Ms Churley:** I won't be travelling when the House is in session. That's just the bottom line. I don't do that, not just because we have nine members but because it is an extremely busy time in my community and I don't travel during that period of time unless it is urgent. So any travelling I will be doing will be when the House is not sitting. I certainly don't mean to suggest that other people have—people can travel. They can have conferences whenever they want or whenever they choose. I just won't be doing that. I can't.

**Mr O'Toole:** May I just have one small compromise? I think I found for myself the perfect solution. As you might know, I speak a fair amount in the House and that would be missed. It would be hard for the whip to replace me. But if I was to pair with Mr Bradley, there would be some accommodation there on the time of speaking.

**Mr Gilchrist:** Subsequent to our last vote, prior to those discussions, I had thoroughly researched the conference schedule for different venues that we are dealing with: hydrogen in its many varied aspects, as well as appropriate site visits in jurisdictions relatively close to those conferences. I prepared a plan. The Chair signed off on that plan. Since we seem to now want to revisit that, I'm prepared to move a motion that the committee endorse the plan that has already been signed off by the Chair, which has me going to a one-day hydrogen solar conference in London next week; followed by a three-day hydrogen expo, which I am told by people like Stuart Energy is the premier hydrogen expo each year; and site visits in Germany and Italy.

And, as I had mentioned at this committee before, interspersed in there, as an attempt to kill two birds with one stone, was an invitation by the OECD to bring the Canadian perspective on red tape reduction to a world roundtable on that topic. So only one half of the airfare would be charged to this committee and one half would be charged to red tape.

My motion is that the committee endorse the travel plans as already approved by the Chair.

**The Chair:** Is everybody comfortable with Mr Gilchrist's travel? We have a motion on the floor.

**Clerk of the Committee:** And that he reports back.

**Mr Gilchrist:** Absolutely. I'm taking the laptop.

**The Chair:** Those in favour? Those opposed? The motion is carried.

I gather from the debate and the comments made—correct me if I'm wrong—I know Mr O'Toole is concerned about the vote in the House and getting clearance from the whip. Mr Gilchrist doesn't seem to be quite as concerned. Maybe he is, but not verbally.

**Mr Gilchrist:** I've had a conversation with one of the opposition members and I am comfortable that we are not going to let partisan issues interfere in what has been a motion passed by the House that empowered us to do these things while the House was sitting. I have to believe the three House leaders knew what they were doing when they crafted that motion and I'm taking them seriously. I am very comfortable that I will not be compromising, from our perspective, because we have

that gentlemen's/ladies' agreement. I think this is important work we're all doing here and I would be very distressed if anyone took advantage. This won't be the last time some member of the committee leaves, and I'm prepared to offer the quid pro quo, absolutely, when it's somebody on the other side who is away.

1100

**The Chair:** I was just going to round that one out as you stepped in there, that maybe we set this up on a one-to-one basis and then you let the whip know accordingly, and we go from there.

**Mrs Bountrogianni:** I'm in full agreement that we should co-operate so that we allow people to go on conferences and not worry about voting schedules. However, there is a young man in your corner there who takes our attendance every day for the sole purpose that it will be used against us in the next election.

**The Chair:** In our corner?

**Mrs Bountrogianni:** The Tories. You guys have an attendance councillor. I guess I'm concerned that we may trust each other here—

*Interjections.*

**Mrs Bountrogianni:** Oh, yes, there is. He comes in. We know him; he knows us. He's not taking your attendance, he's taking our attendance.

**Mr O'Toole:** Ours is taken and published.

**Mr Bradley:** Maybe we could send a note to him saying where we are.

**Mrs Bountrogianni:** All I'm saying is, trust has to work both ways. That's all I'm saying. So perhaps we can talk to our House leader about that situation. Otherwise, it's a moot point. Trust has to be both ways. I'm not saying that the members opposite know what's going on, but we wave to him to make it easier for him now. I say, "I'm the one with the long name. I'm here."

**The Chair:** So that's who you people have been waving to. I thought you were waving to me all the time.

**Mr Gilchrist:** That's news to me, Marie, but I would be more than happy to pass along to whoever—

**Mrs Bountrogianni:** We're going to talk to our House leader about that.

**Ms Churley:** With all due respect, Mrs Bountrogianni earlier inferred that I was being partisan when I was expressing a point of view—

**Mrs Bountrogianni:** Mr Chair, on a point of order: Did I say that? Is there anywhere in Hansard that I said that? Because if there's not, I want it struck. I don't want to be accused falsely of anything.

**Ms Churley:** May I continue, Mr Chair? I was going somewhere with this and I wasn't being—it's my point of view about energy conservation. What I wanted to say is, this is a partisan place and I think this whole conversation is somewhat ridiculous in terms of what happens in that House. We can try to get the House leaders to make an agreement, but we know what happens once we get in that House from time to time. We're having this discussion about what the Tories are doing to the Liberals and vice versa and all of this. I think this committee is going completely off course here. We travel when we can

and we try to work together, but that's the best we can do. Let's get real.

**The Chair:** We got a little sidetracked there. My apologies.

**Ms Churley:** Yes, we did.

**The Chair:** I don't know if anyone else is urgent to travel.

The other item I wanted to discuss is events. I think we had an excellent event last Wednesday. I believe with what's currently occupying the news, little coverage actually ends up out there, but the press really seemed very intrigued with what we were presenting. I would suggest we wait until November to have more events and I would also suggest that these events be more the subcommittee pulling together to make it happen. I'm anxious that that kind of thing happen, but I'm also anxious that it's the committee that's doing it, not the Chair and not other aspects of government, that it's in fact the committee. Probably the subcommittee would be the one to make sure the nuts and bolts happen. We can then work also with the clerk and research to pull these together.

Any comments on making these events happen? Any agreement? Roughly in November, we'll start trying to pull together two or three, from November 1 to the middle of December, and then we'll see how they go and what other ones we should be doing. OK.

Coming back to the agenda, we also have this major heading on the agenda, "Consideration of summary of recommendations as precursor to final report." We've talked about, "Committee publicity, press conferences, technology demonstrations"—that's events.

We talked earlier about this direction. My understanding was that at some point we'd take this—what we have now is a summary—and we'd pull that into an interim report to submit and we'd do it by the end of November. We'd look at it on the 15th of November, we'd have two weeks to work on it and then submit it. It's not a detailed thing, but at least it gives some idea to government of what we've been hearing. Then we would, with research, start scoping this in—and when I say "scoping," it's what will work with the various policy instruments that may be coming forward for the final report.

I don't know how many of you have had a chance to read this. I think our research has done a great job. I was rather surprised. I don't mean to be partisan, but the number of instruments in the front of this, when I was reading it—there are a lot of instruments already in place.

Anyway, the summary is here. There are a lot of recommendations by those who presented to us. I think we're 80% or 90% of the way there. Comments?

**Ms Churley:** Yes. I also wanted to congratulate and thank Jerry Richmond, and I don't know if Bob Gardner was involved as well, and any other researchers who were. It's a really good summary and it really helped a lot. There was so much material that came before us. Thank you.

That was our initial date for an interim report. It's not just the government and the House that would be

interested in this. As I said earlier, I've been out speaking to some groups in Toronto and there's an extreme interest in what we're doing here and lots of questions on how they can be further involved, all of these things. So that would be a good report to make public just so people can see where we're at and the scope of what we're looking at.

**The Chair:** Personally, I think there's some importance that it go before Christmas, before the end of the year. If we wait till February, well, why not wait till the end? This just alerts them to the general things we're hearing out there.

**Mr Gilchrist:** The summary was excellent. I think it did a tremendous job of distilling down what we heard at those hearings and offering some additional insights.

I wonder if, to get the maximum impact from the circulation of any prospective document, we could include as the final page in each section of that report a series of questions asking people to rank the viability, the acceptability, the financial impact they see, and whatever other observations they care to offer. If we were able to use this document as a way of framing the debate from here on and getting public input in a way that's a little more focused perhaps than what we normally do in public hearings, where people just come in and give their 20 minutes free form—if we've reached certain conclusions, and I think the research does direct us down certain paths, it would make sense that we ask people to try and stay on those paths to the extent that they can. If out of that we can develop a stronger image of what the people in this province believe are viable alternatives and what they're prepared to pay for them and the timing to make any or all of them reality, I think that would go a long way to helping us in the crafting of our final report a couple of months later.

**The Chair:** Other comments? We can work on some suggested questions that people might respond to. I think that's a good point.

**Mr Jerry Richmond:** Thank you for the comments. The summary was a joy to do.

**The Chair:** We didn't put much pressure on you.

**Mr Richmond:** A foot and a half of submissions distilled down. Actually, I'm pleased with it myself. Keep the cheques going.

Just a few comments here based upon what committees have done with these types of summaries in the past, and you may wish to consider these to more focus the document in front of you. In the next few weeks when we're meeting, it might be useful if the committee went through this and, by consensus, as you digest this, if the committee wants to give any further direction to the various topic areas or possibly drop certain topic areas where the committee, by consensus, doesn't feel those various energy forms have much potential, I think that would create a better document to go forward in your interim report.

1110

Each of the topic areas has three sections. There's a commentary section that includes verbiage reviewing



what we've heard, and I would very much appreciate your comments on that, or focusing, because my initial function in doing the summary—I didn't feel obliged to pass judgment on any of the energy forms; I merely wanted to represent what we heard. Incidentally, we're getting many more papers of supplementary submissions. I intend to include those in a revised summary, subject to your direction. My thinking is that I would only include new things, because it's important for the summary to reflect all the witnesses and all the submissions that have come before you. So to get back to the organization and input on the summary itself, as I was saying, you've got a commentary section, and I think it would be worthwhile for the committee to further focus any of those sections of verbiage.

Then I've pulled out the witness recommendations. If the committee wishes to comment or focus on any of those recommendations possibly in a preliminary way, identify the recommendations that you feel have promise or maybe some of them you don't feel have promise in Ontario, maybe there could be commentary from the committee on the recommendations, identifying in a preliminary way the ones that you feel have promise or maybe not commenting on the ones that you feel don't have promise.

Then I included questions in the form of possible issues for committee consideration based upon what we've heard and knowledge of the public policy process around this place. I cast in there a number of questions, and the committee may wish to address those and maybe focus your thoughts more. I think that would be a more valuable document.

Furthermore, the initial section, which is an important one that addresses proposed policies to promote green energy: that might be an area that in the interim report you may wish to focus upon more directly.

I think if you did that, it would be a much better document to serve as your interim report. So maybe we could do that in the next few weeks. I don't know what process you want to use to focus this document.

Similarly, some of the supplementary energy forms may not merit further attention.

**The Chair:** If I can just make a quick comment here, I think that's something we do need to focus on and maybe set aside a meeting to totally focus on this summary to get it to the November 15 point, and then we can debate at one or two meetings then for the final. Is everybody comfortable with that, and that we move in that direction? If you want to shift that to December 15 for a final, I'm certainly comfortable there, but I think I'd like a deadline to at least work toward. I'd like to stick to this topic. I think you want to put a motion, but I'd like just like to stick to this topic until we wind it up.

**Ms Churley:** I'd like to comment on it, because I don't know if we can get it done for—I don't think we can—the interim report. I think people would agree with me that some of those we might have disagreements and arguments about. Again, there are so many subjects here that I'm not sure we can narrow it down and scope it.

But I think in a different way you're coming back to what I was trying to say, perhaps unsuccessfully, earlier. I want to ask this question directly to the researchers. If there's concern that we have to, to some extent, scope this down so that—I don't mean to put you on the spot, but I think your input into this discussion is really important in terms of our ability to achieve our goals here. Is that part of your concern, that we need to spend more time focusing so we can come to a reasonable set of recommendations?

**Dr Gardner:** I think there is a point at which you will have to focus down. Again, it's entirely up to you how broad you want your recommendations to be. What we're hearing from committee discussion today is that you want to stay fairly broad for a while longer anyway to make sure you understand the whole scope of alternative fuels and energies.

If you were to look at your whole work plan, you could keep broad with your interim report, with any further witnesses you want to have in from local areas in the next little while—while you're here and the House is sitting—with the consultants that we will hire over the end of this year. Then maybe in January or February, if you're talking about site visits or going to other jurisdictions, that's the point at which you've got to focus in. If you're going to a particular jurisdiction, you want to see what they do really well. What we are hearing, though, is you're not quite at the stage of knowing who's doing the different alternatives really well. When you get to that stage, then you go to that place to find out about hydrogen cells. You go to this place to find out about wind power. We do feel, yes, focus is needed, but it's up to you when. You can wait a while longer.

**The Chair:** There may be the advantage here that our interim report is very broad and our final report is very focused. But at least we have on record, on submission to the Legislature, all these broad ideas and thoughts. There may be a real advantage there.

Other comments on the report? We will keep working down this way and we will set aside a meeting late October or first of November to address this more seriously.

**Mr Richmond:** Focus or keep it general at your prerogative. But from previous committee experiences, the committee has gone through these things and put more of their stamp on it. What you've got before you now, I distilled down as best I could from the mountain of material that came before you. That's really my point. For example, under the water power, there's mention of the issue of the additional potential at Niagara Falls, upgrading or expanding the Beck plants. Maybe the committee, in a preliminary way, wants to give some further direction to that. What's in there now is merely a descriptive point that this is an issue that the committee addressed.

I know we've received from OPG the EA that they did—I haven't digested it, but it's in Tonia's office—for the Beck 3 proposal. Maybe the committee, and this is just a possibility among many, wants to give some initial

focus or more of a green light to that concept. Maybe you don't. But that's what I mean, to give you a specific example, because right now in the water power section, that's just mentioned. I didn't go out on a limb one way or the other and give it a green light or a cautionary light, but maybe you do. That's a specific example.

**Ms Churley:** To continue, then—I wasn't quite finished—I think what you just said was sort of what I was suggesting we might do earlier and that got shot down. I don't think the committee wants to go in that direction until we get to our final report. But that was my suggestion.

**Mr Parsons:** I certainly agree that I don't think the interim report is a place to focus down on the topics; it should raise questions rather than produce answers at that time. But I'd like to, along that line, roll back.

It was my sense or understanding that we were going to, as committee members, though, start to focus, because it's not productive if I start to look at sites I want to visit and come to the committee with it and find out someone else is also making the same arrangements. I don't think there's any point in two, three or four of us doing that. So at some stage, fairly soon, I think we need to do some division of topics and allow each of us to then, individually, do an in-depth focus on the topic and bring it back to the committee—or more than one topic.

**Mr Gilchrist:** Just a final point, because I don't think we're really talking at cross purposes here. I think, Jerry, one of the things you could do in the questions that could be appended to each section is to actually pose some specifics about Beck.

Jerry had a good point just a second ago. Maybe after ethanol, we should be asking people to consider: what role can ethanol play in the phasing out of MTBE, MMB and other additives? To some extent, I think, we have to continue to use this document as a way of fleshing out the knowledge that's out there and the interests and the preferences of the folks to whom we are responsible.

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Then we come back and we make the decision based on hopefully some thoughtful answers that have come into those questions. I'm not comfortable right now saying what percentage of fuel should be ethanol. But my guess is before we are done, we would have enough scientific feedback that we could make an informed decision. I agree with the points made opposite that this should be something that gets a lot more discussion, not conclusions.

**Mr Ouellette:** What I was saying to Mr Gilchrist is that we should have listed areas of discussion so that, for example, under ethanol, area of discussion could be phasing in of ethanol as an alternative as an oxidizer. But there still needs to be a lot of research. Since the meetings here, I've had a couple of meetings in the discussion of phasing in ethanol as an alternative. But I'm now finding out that when ethanol is utilized, they use a more carcinogenic substance to boost the ethanol, so I need to ask those questions. Listed as areas of discussion opens the floor to further advance and it lets everybody line up

and get ready to respond when we come out to further the final report.

**Mr Hastings:** The policy focus to some extent will be dictated—maybe that's a bit of a strong word—will strongly be influenced by the outlook of the person we hire as a senior researcher. I think that individual will provide us tremendous guidance. Aside from that, I would think that in the discussion of specific alternative fuels, there ought to be the upsides and the downsides. There should be some benefits and some negatives.

As for the interim report, whenever that evolves, I would think it would have probably more in the way of questions than it will answers. It could include a flavouring of those pluses and minuses for each of the different technologies that are advocated by people who send in submissions or attend by public committee appointment.

I think your interim report will have a lot of questions and some answers, but it will pose hard-hitting choices. Then the final report would probably answer most of those questions and come down on the side of four or five specific technologies or fuels with the tax treatment included in it. But I think your senior consultant, whoever is hired, will be able to provide us with some guidance in this area as to the reporting format of what the product might look like in the end. We may not like that particular format, but it would probably be more visualized by that individual, because hopefully you're going to hire somebody who has had experience in the development of a public policy format and a report that will actually end up having some specific policy outcomes. I think that will guide us tremendously.

**Ms Churley:** Those are all reasonable suggestions and I support them. I think what we've identified here in terms of what we are looking at are a number of areas: the pure technology, the environmental implications, the economic instruments, tax incentives and policy frameworks. Somehow we have to, in the context of our recommendations, look at all of these things. I support that. That's why I believe that at a certain point to some extent we are going to have to scope.

The second thing I'd like to say is, and I know it is my personal issue here, having started the energy efficiency office at city of Toronto and worked a lot in conservation and efficiency measures. That's one that I keep pushing as something that, in this report—and if people don't want to support recommending right away that we do something, I don't think we need to do particularly a whole lot more research on that in terms of answers to all of those questions except for the economic side of it. I understand the cost issue. But we know Ontario is one of the biggest energy hogs in the world and that there's a very clear policy area that we need to be moving on quickly, and that's efficiency and conservation. I'm coming back to what I said earlier. Perhaps there's some way within the report, without recommending right now, that as—some of the ones we can look at and say, "We know certain things about this area, and this is something that"—not necessarily recommending. I don't know the wording, but we can we pull it out and recognize it as an



important issue that we need to be moving on. I don't know how to do that in such a way that it is not a recommendation, but you know what I mean? It is so vital and so fundamental to this whole discussion.

**The Chair:** Maybe if we can move along, I think we are generally in agreement where we are going with the interim and final reports. Sometime maybe we will pick a meeting, either the last meeting in October or the first one in November, to really address this, spend the two hours on it, and we will move on from there, if I may.

**Dr Gardner:** Mr Chair, what we'll do is we'll take what we've heard today and we will recast Jerry's summary as a potential interim report designed to facilitate discussion and input from the public. We will work up some questions along those lines. We will get them back to you quickly, and then you can meet and go through that report in that light.

**The Chair:** I think we've worked through an awful lot of the issues that are in that memo of September 27. The other one has to do with the A and the B lists, and that would have to do with some of the travel.

**Mr Gilchrist:** I thought you wanted to talk first about the idea of more events here at Queen's Park.

**The Chair:** We did cover that quickly a while ago, that it would be in November and it would be the subcommittee that would tend to guide it through. Sorry. It was—

**Mr Gilchrist:** That's fine. That was going to be my submission, that rather than rush any in the next couple of weeks, we take a longer time to better plan and make sure we get every player, certainly from an Ontario perspective, in each technology, and have a theme.

Might I suggest—and sorry; I guess you dealt with this before I got here this morning—that maybe if that event is staged at noon, that the 10 to 12 meeting that day, if there is an interest in having further meetings with companies that have now written in and expressed a willingness to come before the committee—if, for example, hydrogen is planned for a certain lunch hour, from 10 to 12 that day we could have other hydrogen companies come in. In effect, that would be our hydrogen day. Then we would have our wind power day and our solar day and that sort of thing. If there's any merit in—

**The Chair:** We're looking at about three of those: two in November, one in December, something like that, in the back of my mind. The subcommittee is going to have to be meeting soon in connection with hiring a researcher; maybe we can address that topic at that point in time. We also have staff who can assist us with some of that arrangement.

There are the A and the B lists. I'm not sure how much you want to discuss that at this point in time. That's a phenomenal amount of information there about where these things are happening and not happening, who's leading, who's not, who are the organizations. I guess one I did want to cover as well, in connection with that, are the various organizations that we have had requests from since we had the hearings in August.

Do you want to hear from more people? We have heard from I think almost every area. Some of it might be duplication of information. We do have a good body of knowledge in these various areas.

There are a few things like, do you want to visit the Independent Electricity Market Operator out in Mississauga to see how that's run across Ontario? I have been there with the previous select committee: intriguing to watch. It gives good understanding of when power is put in, where it is being taken out, and the grid across Ontario.

Do you want to listen to more witnesses? Do you want more meetings on discussions as to where we're going?

*Interjection.*

1130

**The Chair:** That's a good point from the clerk. Various members around here have also put in additional witnesses that we wanted to hear from, from a more global point of view, not so much to specific technologies but more thoughts.

**Mr Hastings:** I have put in some names on the financial side, and I would hope other people would do similarly.

The Independent Market Operator: I'm open to going. I don't totally see the relevance of it, but if it would lead to a discussion about alternative fuels, I suppose it could be a good thing to hear from those people. I don't know if that's on their radar screen or not.

I think we need to have some more hearings, probably mid- to late January, in terms of people in areas we have not heard from. For example, the other day I had the opportunity to meet with Dr Ian Rowe from one of the centres of excellence at York University. CRESTech is its trade name. He was involved here in energy development policy back in the 1970s and 1980s related to conservation and hydrogen. So it's a name you might want to put on your list as to how far they got and what created the failure. Was it political or was it an event outside of Queen's Park that lapsed most of that green fuel development policy at that time?

I think you're right, Mr Chair, that we've heard from most of the groups in terms of the potential of the technologies. I'm sure there are one or two that are missing yet, and that needs to be covered. The financial should be heard—the tax treatment or however you want to define that—and people who may have been involved before. Then I am sure there are retailers, consumers, that whole group of people, because in our first hearings they were essentially corporate. I think probably we want to hear from consumers as well. That would be people who might be even using this stuff, whether it's a hydrogen car or a solar-heated water heater, that sort of thing: commercial/industrial, institutional, governmental. So those would be the areas that I think we should look at in the second round of hearings.

**Ms Churley:** Just very briefly, I think that in the second round—and I believe everybody is saying this—we need to be quite focused on who we hear from again; in particular those omissions or anything new we hear

about that got left out, or those we identified that we wanted more information about.

I just wanted to point out that we heard from a lot of ministries. I have requested that the Ministry of Municipal Affairs and Housing be asked to appear before us again talking about energy efficiency and conservation ideas and retrofitting, so I'm hoping that we can hear from them.

**The Chair:** Other comments?

**Mr Parsons:** I think we really have heard from a lot of sellers of electricity and sellers of energy, and yet one of the statistics that struck me was that about 70% of our energy production is consumed by 100 industries. I'd like to hear from the buyers of energy what their perspective is. It may have to be by invitation, but aluminum companies, automobile manufacturers that are tremendous users—I would like to hear their perspective on where they want to get their energy from.

**The Chair:** Sorry, Mr Ouellette. I think you wanted to comment.

**Mr Ouellette:** Yes. There are a couple of things. First of all, there may be some other areas; for example, the Ministry of Health in discussions with the use of MTBE parts per million or ethanol as an alternative. What is their position on what takes place in these when they come forward? We could hear from them when we're looking at alternatives, whether it's methanol or whatever the case may be.

I believe there have been a number of television shows, whether it's W5 or Discovery or CBC reports or Nova, that have a considerable amount of research done already. I watched one on low-flow water generation that takes place in BC, but I can't seem to track it down. Possibly research could help us in some of these other areas that have already published materials, whether it's televised or written. We might be able to find some research in those areas as well that will help give us some background.

**The Chair:** May I make a couple of suggestions to the committee as to some of the things we might do. I'm just looking at dates for Wednesdays: the 3rd, 10th, 17th, 24th and 31st. On the 10th we might use the meeting for purposes of looking at a preliminary run at the interim report, just spend a little more time working with you people. I suggest that because that would give us two weeks—the 17th—to start inviting some of these groups we've been talking about. I think we should give them two weeks. The other thing we might do on the 10th is visit the independent operator control centre. Maybe on the 17th and 24th we could look at some delegations coming in. I'm a little concerned that we're going to get ourselves squeezed in November. All of a sudden we're going to want to talk to a bunch of people, be trying to hire a researcher and trying to put together a preliminary report.

**Mrs Bountrogianni:** Is the 10th too soon to start talking about—are we going to have what you suggested by next week? That's a tall order.

**Dr Gardner:** It depends. If you want to meet on the 10th, we'll meet your deadlines. Probably there wouldn't

be time for us to entirely revise Jerry's summary, recast it as a public input document and get it to you in time for you to look at. We could very quickly, in a day or so, revamp, say, the questions at the end of each section. It would be easy for us to get a fully revised document to you in lots of time for you to look at it for the 17th. If you want to meet on the 10th—I mean, you guide us.

**Mrs Bountrogianni:** My second question is, why should we visit the Independent Electricity Market Operator? What would be the goal of that visit?

**The Chair:** A basic understanding for the committee of where the power is coming from presently in Ontario, where it's generated. I've been there; I don't particularly need to go again. There's this monstrous board with all the generators on it and the grid across Ontario. You can see them putting power in, and you can see the power climbing during the day as the needs are there and when they trigger on a gas generator someplace for the peak, particularly if it's a hot day—it's kind of intriguing to watch how it works.

**Mr Hastings:** I guess the thing I'd want to focus on, if we go, is to what extent the IMO will handle green power. Will they require more legislative direction?

**The Chair:** It may be the type of thing we should do in January or February rather than at this point in time.

**Mr Hastings:** Maybe you're right. Visit them later, because I think we need—

**The Chair:** Give them time to gear up and be prepared to present to us.

**Mr Hastings:** I'd like to ask them: if you have green power in the marketplace, how will you wheel that into your total system?

**The Chair:** And are you willing for net metering?

**Mr Hastings:** Exactly, and how will you take directions from the OEB on the use of green power with the negative credit, the training and all that stuff? I don't know if that's necessarily their purview.

**The Chair:** Let me be really generous with the committee then. Would you like the 10th off, and then on the 17th and the 24th we start lining up groups we will meet with—I think it's pretty obvious which groups we should be meeting with—and give them 20 minutes each?

**Mr Gilchrist:** In fairness to the research people—they've done an excellent job so far—for the sake of one week, if that allows them to bring back a kind of comprehensive discussion paper, I'm far more comfortable allowing that extra week.

**The Chair:** Could I just look at having a subcommittee meeting on the 10th at 10 o'clock, we'll come back on the 17th with this draft of changes from research and we'll look at the 24th and the 31st for presentations that the subcommittee will pull out on the 10th.

I won't give the subcommittee a break, but everybody else can have a break. Is everybody comfortable with that? Is everybody on the government side comfortable with that? Anything else that should be covered at this meeting? Anything in here that we've missed? As I go up and down this list, I think we've covered it—maybe not



right in order; three or four things have come in under one heading.

**Mr Gilchrist:** Oh, forgive me. Mr O'Toole had to go to give a speech and asked me—I guess reflecting on his comments about the need to have a dialogue with the whip, but notwithstanding the when—that if he can get the appropriate assurances from the whip, he would like to participate in the visit to the ITER project—I think it's called JET—over in Oxford. When it comes to Canada it's going to be called ITER.

According to your new requirement, I would be pleased to move on Mr O'Toole's behalf that the committee authorize Mr O'Toole to participate in a visit to the JET project in Oxford, England, and related meetings dealing with the practical and financial aspects of that potential alternative fuel.

**The Chair:** Do you have a date? It's next week, I believe.

**Mr Gilchrist:** I believe it is next week, yes.

**Clerk of the Committee:** And he will report back.

**Mr Gilchrist:** He will report back.

**The Chair:** If I remember correctly, there's a bit of a problem because he has to fly out next Monday or Tuesday.

**Mr Gilchrist:** It's a very tight time frame. The other issue is whether he can arrange it.

I think the topic has come up before. It is something to which the government has committed \$300 million, so there's one where the financial impact is already known. Clearly, Mr O'Toole has identified that as one of the alternative fuel issues on which he would like to focus.

**The Chair:** Discussion?

**Mrs Bountrogianni:** I think this issue has to be brought to the House leaders or the whips—I'm not quite sure which.

**The Chair:** That's his problem as an individual.

**Mrs Bountrogianni:** To have assurances on both sides that this is done.

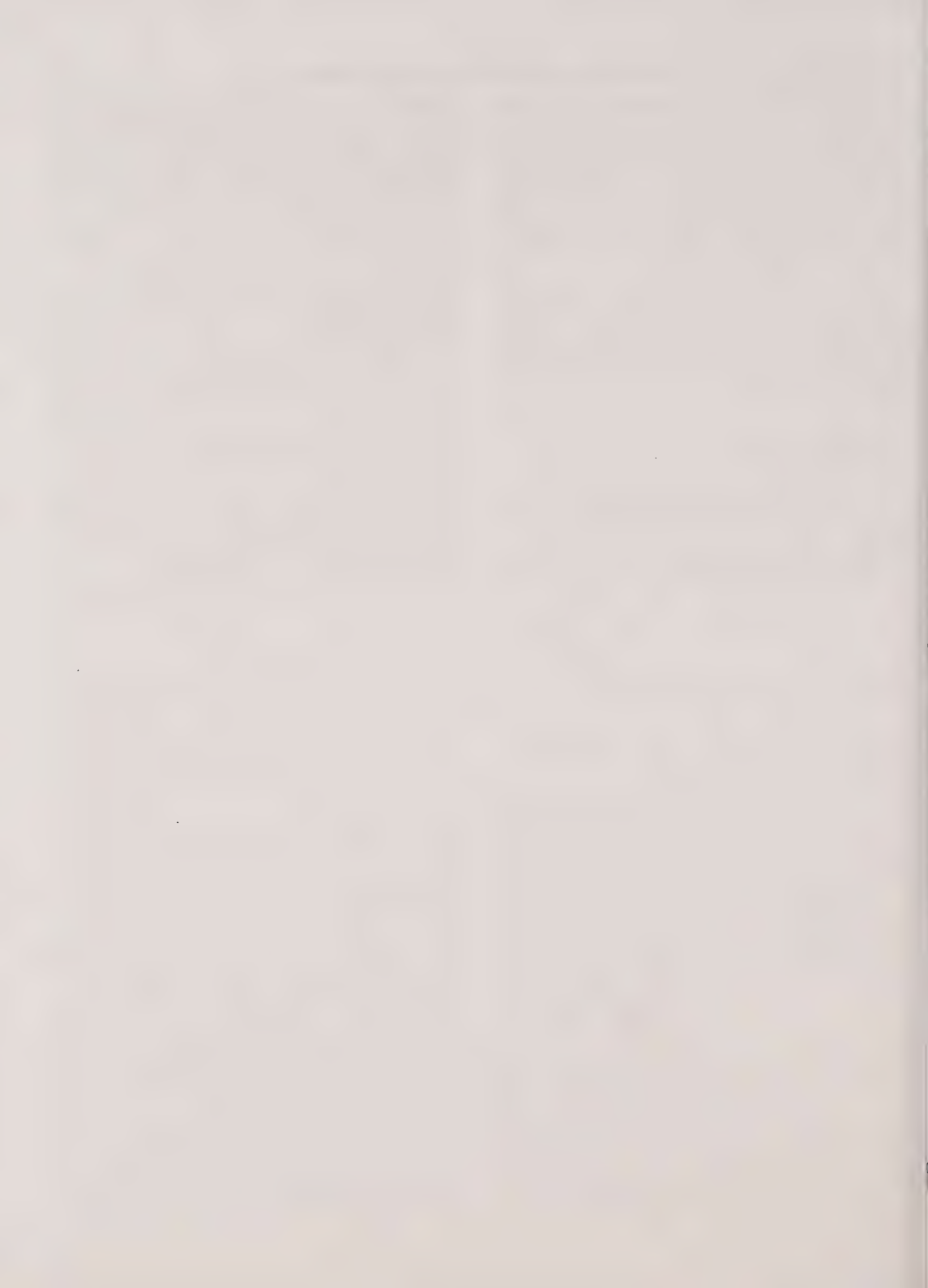
**The Chair:** He's got to sort that out. From the discussion I heard earlier, I don't think we're going to get that at the table here. It is going to have to be a one-on-one. If he can't win with a partner on the other side, then that's his problem.

**Mr Gilchrist:** I hope there are no votes that week.

**The Chair:** Those in favour? Those opposed? Motion carried.

Anything else? Then I think we'll adjourn. We'll reconvene as a subcommittee in this room at 10 o'clock next Wednesday morning. Please keep your schedules open for future meetings of the full committee.

*The committee adjourned at 1143.*







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Deuxième session, 37<sup>e</sup> législature

# Official Report of Debates (Hansard)

Wednesday 17 October 2001

# Journal des débats (Hansard)

Mercredi 17 octobre 2001

## Select committee on alternative fuel sources

Committee business

## Comité spécial des sources de carburants de remplacement

Travaux du comité

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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Wednesday 17 October 2001

Mercredi 17 octobre 2001

*The committee met at 1007 in room 228.*

## COMMITTEE BUSINESS

**The Chair (Mr Doug Galt):** I call the select committee to order. You have before you an agenda. First is a report on subcommittee business. You have a sheet there with that information. The other thing you have before you is a sheet from Bob Gardner dated October 12, three pages. We want to work through that this morning as well.

We were struggling with objectives earlier, and we have a group of objectives before you at this point in time. There is one modification in the discussion that had to do with energy for heating that's not included in this particular list. I don't know if you're comfortable with that breakout of the activities. I was struggling with a way of having a breakout, and I see heating is one more. I was kind of seeing it in the third item, potential use of agricultural products for energy, but you could also have heating in there, or it could be a fifth one. I'm looking for some of your comments, responses.

**Clerk of the Committee (Ms Tonia Grannum):** What we could do is adopt the report and then we could amend it to add the heating, if you'd like.

**The Chair:** Can we amend after it's adopted?

**Clerk of the Committee:** No. You should amend—

**The Chair:** Make the amendments first. I just thought we'd have some discussion on it before.

**Mr John Hastings (Etobicoke North):** I think, on objectives, one of the things we ought to be looking at is the potential for job creation and export development of alternative fuels. I've met with a number of people, solar energy being my interest, but people in district heating and the combination of natural gas heating with electricity. We're importing more equipment than we're exporting.

Solar: we could be a major exporter of solar-based energy products. The market had actually started to do that slightly in the mid-1980s, when the feds had their grant. Ontario Energy Corp, as a separate ministry, had energy—I can't think of its exact name, but there were funds set aside from about 1984 through 1988, maybe 1990, for feasibility studies. They were more than just the academic sort. They were actually the installation of product where they use natural gas, as an example. I visited one just recently. It's a nursing home, a seniors'

place, 425 units—it's about five kilometres from here—and it's natural-gas heated combined with electricity to some extent. The savings have been enormous. They got their monies to get started, half a million dollars, through feasibility grants from the Ontario Ministry of Energy. The people from this company were telling me they had to import equipment from the US in the 1994 final phase.

Using that as a prime example—solar; you can see it with our presenters from the Canadian Wind Energy Association; from biofuels—there is tremendous potential in a number of these areas and we need to document them. I think the report's objectives, the committee's objectives, should include that, as to how alternative fuels could have major impacts for job creation across Ontario and, hopefully, Canada. I know it's partly stated in there, but I think it should be made a specific objective.

**The Chair:** If I may, I think we have, in the subcommittee report—maybe, number one, the heading isn't just the way it should read. Really, what I was working towards there, rather than objectives, is that the committee deal with four broad areas of activity. Then, item 3 would include, after the semi-colon, "heating energy."

If you look on page 2 of the package that Mr Gardner had put together, we have listed possible objectives there, which are not part of the subcommittee report but part of what he had packaged for me for possible objectives after some discussions. Just to continue on your comment, we don't specifically mention jobs, but your point is well taken. If I could just set that aside, I may have misled you a little with the subcommittee report and having used the term "objectives" here. Rather, we were just trying to break the areas of activity into more understandable compartments. Item 1 would read, "That the committee deal with four broad areas of activity," that wording.

The third bullet point: "Potential use of agricultural products for energy; and heating energy."

**Mrs Marie Bountrogianni (Hamilton Mountain):** May I move acceptance of the subcommittee on committee business.

"Your subcommittee on committee business met on Wednesday, October 10, 2001, and recommends the following:

(1) That the committee deal with four broad areas of activity:

Alternative means of producing electricity;  
Alternative energy sources of transportation;

Potential use of agricultural products for energy; and"—an addition—"heating energy";

Development of an effective and responsive policy framework to encourage innovation in alternative energy, and education on the overall policy issues surrounding alternative energy and fuel.

(2) That a short list of names for candidates for research consultant be provided to the subcommittee at its next subcommittee meeting to be held on Tuesday, October 16, 2001.

(3) That the committee meet to discuss its objectives and to consider its interim report on October 17, 2001, and on October 24, 2001, if necessary.

(4) That the subcommittee give some thought to selecting additional invited witnesses (umbrella groups) to attend at future meetings of the select committee.

**The Chair:** Thank you for getting that read into the record. Are we comfortable with item 1 now as it was read and moderately changed?

I can report that the committee did meet yesterday. We have worked it down to probably interviewing four candidates next Tuesday afternoon, and will report to committee next Wednesday morning on hopefully one or two that we'd have.

Also, on item 2, just a comment: you'll see the objectives that we have tried to package, and we'll discuss those later.

Item 4: really, we haven't followed up on that totally, "additional invited witnesses," but we're looking to the committee as to some of the things you want to hear as we move through November.

Having commented on that, those in favour of the subcommittee report? The motion is carried.

Before we move into it, we should have a short discussion as we work on the interim report. Report writing on occasion, maybe generally, is done in camera rather than in open session. We're talking interim report. We're really modifying the summary that was originally put together. What is your wish? A thought might be to operate in open session for interim reports. The final report might tend to get a bit partisan and that might be the time to operate in camera, if the committee so desires. Is there any desire to move in camera for this discussion?

**Mrs Bountrogianni:** Not on my part. The interim report is objective. I think what we have, the first draft, is very objective.

**The Chair:** Hearing no motion to do so, then we'll continue? Everybody's comfortable? Maybe we could just take these three pages and we'll work through what has been suggested from research and see if people agree with the direction we're going. In a few minutes we'll get to where Mr Hastings had concerns about objectives. But developing the interim report, any comments on the general direction; summary of the first round of hearings? That general layout has been distributed to you, this package which is a modification of the summary that we had to begin with.

**Mrs Bountrogianni:** I was discussing briefly with Jerry earlier the possibility of putting subheadings on the

list of public policy issues at the back. They're at the back now.

**The Chair:** OK.

**Mrs Bountrogianni:** But putting them under subheadings and possibly moving them to the front as discussion points. Right now they're listed without headings, and we have to search to see under which category the different questions fall. So just from an organizational point of view.

**The Chair:** Yes, a point well taken.

**Dr Bob Gardner:** We can certainly do that. The only reason they're at the back is because we were just collecting them as we went along. We can organize that however the committee wants.

I think maybe the key question for you to consider now is whether you want to include any interim recommendations or observations at this point. Jerry has revised the summary to reflect what you heard, and that's easy enough; we can do that quickly for you. It's a question of whether you want to add more to that, whether you want to make some recommendations for things that you would see being done right away, or you don't want to have any recommendations at this point beyond some sense of where you're going next in the report.

**Mrs Bountrogianni:** I think I made my bias clear last time. I prefer the recommendations to be in the final report. But I'm open to any suggestions from my colleagues.

**The Chair:** Any comments, Mr Hastings or Mr Miller?

**Mr Hastings:** You're looking at pages 4 and 5 in the end, or what?

**The Chair:** Right now just the general overview of the interim report, the categories of grouping rather than the details, kind of what we're looking at. We can certainly get into the detail, and that's important. Right now, does anyone at the table feel that we're comfortable enough with what we've heard that we can start making recommendations to government. It is early? There are a lot of instruments out there and we're about to hire a researcher to look at policy and instruments in other provinces, states and countries. We may find some very significant things.

At this point in time we've had four days of hearings, 60-some presentations, along with the various ministries. It may be premature to be making recommendations at this time.

1020

**Mr Hastings:** One of the things that ought to be included in the interim report is that once the researcher is hired, I think we should get that researcher to focus to some extent on outcomes of alternative fuels from other jurisdictions. I think it would provide a useful guide for us in terms of moderate success or failure for, say, wind energy.

I went through the material Jerry provided regarding the German government's aim to convert nuclear to wind by 2025. The minister for the environment over there has



been in this position for three years, and yet the report indicates, if it is true, that there doesn't even seem to be a pilot in operation as to charting how you're going to get to 2025. You just have announcements, like all governments seem to do. We should be finding out.

I'm not picking on wind energy, but that seems to be their focus for looking at the Danish experience. Maybe we would have some successful policy outcomes on how much it saved in the production of electricity, how air emissions have improved, how much the Danish government has expended over a decade, if they have, in providing incentives to the wind energy industry and that sort of material. You can't have it on all of them, I'm sure, but where there's some substantial experience as a guide, using wind as an example and Denmark as the lead in that area in Europe, it might be interesting to find out, if that researcher can dive in, drill down and see. What did the Danish government do? When did they start? Are there any stats available on air emission reductions, expenditures put up, jobs created and electricity efficiency improved, and those sorts of things? There could be other categories, I'm sure, but it would be very interesting to see where you can find those.

Then we can use those experiences to some extent as a policy guide for the interim report. You can't do it for every industry because we don't have the experience, but in this case I would find that one quite useful. When we do the follow-up hearings in January, we could ask some very pointed questions to the people who come in from the various groups and from the financial community, if we get them.

**The Chair:** Dr Gardner, you wanted to make a comment?

**Dr Gardner:** We have set out some scope notes, a request for proposal, for the specialized research consultants that the committee will retain. One of the issues we want them to look at is exactly that: has there been research on the outcomes of the various public policies to support the different kinds of energies? So we will be looking for that kind of detail from any research that we do.

**The Chair:** Just as you were speaking, it was running through my mind that once we finish with the researcher—and we were looking at how many interim reports and final reports etc. Mr Miller, what we are looking at in research is coming up with what policy makes green energy work in other jurisdictions around the world. That may make for a neat second interim report as a package: this is what other countries are doing. Then we look to a final report as to our specific recommendations.

Maybe the two reports are two packages of information. We are looking at the first interim now. The second is what we are finding out in other jurisdictions from a policy point of view. After we get feedback on our first interim, we do some more hearings in probably February or March. Then we come in with our recommendations from those two reports. We have that basis to work from. I'm flying by the seat of my pants, so to

speak. That was coming to mind as Mr Hastings was speaking.

**Mrs Bountrogianni:** That makes a lot of good sense. Now is a good time to say that I was successful in getting an intern who's very interested in this committee. She will definitely be helping me in summarizing what I find, outside of Ontario and within Ontario. I'm sure she would like to help other committee members as well, if they wish. That does make sense. I don't know if you even want to call it an interim report; it could be just a summary of other jurisdictions. It doesn't have to be a formal interim report.

**The Chair:** It could be, as was suggested earlier, like a letter. It would be a rather thick letter, whatever we want to call it at the time, but it is information that we feed. By the way, I have an intern as well—he's sitting here—Peter Hargreave.

**Mrs Bountrogianni:** Oh, hi. Lyndsey and you can work together.

**The Chair:** Thank you very much, Mr Hastings; good information.

**Mr Hastings:** One point, Mr Chairman, on the natural gas conversion I was talking about. That nursing home was formerly heated by electricity, the whole thing, which led to very dry air in the place. The stats are probably available, but the anecdotal impression of the administrator was from 20 years ago. The degree of incontinence of patients may have declined when they switched to natural gas because it reduced the dryness in the air etc. Interesting. That's a prime example from Ontario government policies over the last 15 years. The researcher could be looking into how effective that has been in terms of the monies put in and the savings out the other end. They claim \$160,000 annually during the early to mid-1990s. I don't know about the last year.

**The Chair:** In the beginning of the report or summary, there are about eight or nine bullet points on things that the Ontario government has been doing to promote green energy. We might be criticized because we depended totally on nuclear for so long for electricity, but there are some interesting points in there. One thing I would suggest is that in the interim report the committee should be listed.

**Clerk of the Committee:** Yes, that's done.

**The Chair:** I took it for granted that it wasn't.

**Clerk of the Committee:** Yes, in the final version.

**The Chair:** Maybe we'd better promote the committee a little bit.

**Mr Norm Miller (Parry Sound-Muskoka):** I'm just subbing here today, so I haven't had the opportunity to see a lot of the submissions that were made to the committee, but I gather from your grid here that you're looking for some input as to what the focus of this committee should be. Some of the things I think are important are some of the long-term goals, like hydrogen fuel cell applications. I think it would be wonderful. I know that's something that's very near and dear to Mr Gilchrist. I've had private conversations with him where he says he'd like to see no more internal combustion

engines in 10 years, just all hydrogen-powered vehicles in Ontario. I think that's a very worthwhile goal for us to be heading toward. Of course, there would be huge benefits.

Small-scale hydro facilities: I think that's very important.

1030

If there are possibilities of using gas from landfill sites, or alternatives to landfill sites generally, that would be very beneficial. My own personal feeling about landfill sites is that they're ticking time bombs. However we can get rid of them and have some benefit from them, we should be looking at ways of doing that. I'm including things such as incinerating garbage, if it's done in other jurisdictions of the world—I don't know, I'm just throwing that idea out, and perhaps somebody has already come before this committee to talk about that—where you can incinerate garbage and generate electricity. The reason that makes sense, at least to look at it, is that with incineration you can at least measure the damage you are doing to the environment at the time you are doing it and generate some positive benefit from it, whereas with a landfill site, we bury it for future generations, to contaminate their water supplies, and we know how important water is to this province. Those are just some ideas off the top of my head in terms of some things that I think are important.

**The Chair:** Certainly what we've been hearing from delegations has been extremely intriguing, some of the thoughts and ideas of what can be accomplished. One day we had a demonstration of solar energy here, and when the committee first started these hearings in late August, we had a demonstration of a vehicle with a combination of electricity, gasoline and solar power. We had a fair number of them here on that occasion.

I wonder if we could look at the possible objectives that have been laid out for the committee on the bottom of page 2. I think Mr Hastings had a comment as it related to jobs earlier. His point is well taken. Let's go down them one at a time. Are you comfortable with them? Do you want to read them all, just to double-check? This was an attempt at fleshing out the mandate. It would be helpful for our researcher, as well as helpful for the committee. We might even consider the objectives as some action items for the committee. Is there anything there that jumps out at you, that is flashing, that we shouldn't be doing, or is there something that's missing, like Mr Hastings mentioned on job creation?

**Mr Hastings:** Another thing that would be interesting to see is that the finished product should be a clearly communicated, coherent, understandable piece of material that people could pick up and go through very quickly and get a quick education. As part of the objectives—not a specific objective—perhaps the researcher or the group could start looking at packaging and formatting the material for every alternative fuel source. Would it be possible to do not necessarily a matrix but a column or some sort of bar chart that would show how long it would take to move from, say, the internal combustion engine to

a hydrogen- or solar-based car or tractor? How long would it take? Six years? Ten years?

I see Hydrogenics has signed an agreement with General Motors. GM is going to buy 30% of that company, similar to what's happening with Ford and Daimler-Chrysler with Ballard. They say they're going to do some of this by 2004. Three years ago, they were saying it was going to be 2023 in the Daimler case. So you keep moving out a year and a year and, before long, it's 2014 and you see your first real solar-operated or hydrogen-operated cars. I'm wondering if the researcher could have a transition chart of some sort as to where we are now with internal combustion vehicles. Will they still be around in 2005 or 2010? Will we have even 10% of motorists using solar, hydrogen, natural gas or some other type of alternatively operated vehicle by 2020? And not only how long it will take, but what would be the cost to government, how many jobs would be displaced and that sort of charting?

Everything has to go through a transition. If you are going to introduce it with government incentives or however it is done, it would be interesting for the reader to see: OK, it's going to actually take another 15 years before we have a solar-operated tractor out doing soybeans in southwestern Ontario. Or will it be 2030? That kind of transitioning, the most idealistic years out to the more probable. They're all estimates, granted, but that's something we could put in a chart, like you have on the back of this material, how you do the questions.

**The Chair:** What I think I'm hearing from you is that if we find in California or Denmark, this is what they have implemented—

**Mr Hastings:** Or here in Ontario.

**The Chair:**—as a policy, and if we were to adopt that policy here, how would it change in Ontario X number of years down the road? Or if we were to take a combination of those policies, or possibly even come up with a new one, how quickly would that turn it around? It is a guesstimate, but you want a fairly specific outcome by 2020 or 2025, or in that range, that this probably would happen if this instrument was brought in—

**Mr Hastings:** Or if it wasn't brought in, what would happen? And how many jobs will be lost when you move from the internal combustion engine to solar- or natural-gas-operated vehicles? It's like the VCRs. There was VHS and Beta. The technicians said Beta was the best product for videotape, but how much Beta do you see today, except maybe in commercial videotape?

**The Chair:** Your point is sort of like with the digital cameras. Look at what happened to Polaroid.

**Mr Hastings:** Precisely. It gives a warning to some companies that maybe aren't awake, or they're awake but the transition seems to be very quick in some and much longer in others. How many jobs would be lost? How many new jobs would be created in a given area? We've had some of that indication from the submitters already.

**The Chair:** Any comments from the other side?

**Mrs Bountrogianni:** I think that could be easily summarized in a possible objective of the economic fallout or



economic implications of our more technical recommendations, where that information exists. I'm sure there are a lot of processes right now all around the world. Perhaps the implications aren't well known, but where they are well known, they should be documented.

**The Chair:** Should we have this as another bullet point in our objectives or should it be something that we request of our researcher? The fact that it is in the objectives, I guess that gives guidance to a researcher.

**Dr Gardner:** How about if we try and do such a chart or matrix and see how it works? There are certainly an awful lot of unknowables. The estimates are going to be awfully vague for some things. It is probably a useful tool to summarize the huge amount of material you've been hearing. Jerry did a nice, comprehensive background report when he got started. You've also had the summary. You've got hundreds of pages of stuff—thousands, probably. If we can do some charts like that—in a sense, it really is filling out the chart that we've given you, the Chair's idea of trying to build up some matrices by time frame, by potential impact on electricity or heating or whatever and by the particular technologies. We will see if that's a useful tool to help get a handle on these very complicated issues.

**The Chair:** Mr Richmond, I think you had your hand up there a second ago, or is it covered?

**Mr Jerry Richmond:** All I was going say, as a suggestion to the committee from some of the reading I've done, is that if you're contemplating travelling in January, one useful jurisdiction that would potentially focus in on Mr Hastings's concern, like the future of fuel cells, is California. With their air resources board, for the last 20 years they have attempted to move to alternative fuel vehicles. My sense is that the development in the auto industry has lagged behind. They've had to back off on their requirements that a certain percentage of their fleet there should be alternative fuels or electric or whatever. One suggestion may be to try get an answer in January. California has almost led the world with their standards. You may want to go out there and meet with California government officials and get a direct sense, because they've probably been on the forefront, from my reading of it, because of the air pollution problems in the LA basin, to get to alternative fuel vehicles, but they haven't been able to deliver because the technology and the economics have been behind the regulatory aspect. My suggestion is that it may be an excellent thing to go there, if the committee travels.

1040

**Mr Miller:** That sounds like an excellent idea. I'd like to be subbed in when you go to California in January.

**The Chair:** That's a very thoughtful suggestion. We can speak to Mr Gilchrist on your behalf.

**Mr Miller:** With California, for years they've had targets they've been aiming for specifically in terms of electric vehicles. I think you're absolutely correct that they've been ahead of the industry and it really hasn't worked that well. I guess you could almost argue that they were pushing electric vehicles, which just moved the

pollution out of California to where the coal-fired generating plants in other states were located. They have really had a focus on setting targets for electric vehicles specifically, but were ahead of what the industry is doing. But certainly, just about all the automakers have prototype hydrogen vehicles operating at this time. I don't know what's involved before they actually become viable on a commercial basis, but that seems to be a technology that has real possibilities for the future.

**The Chair:** Just looking at these possible objectives, Mr O'Toole, on page 2 of the three-page report that Mr Gardner has put before us, does anybody feel uncomfortable with any of the six bullet points that are on that page? Is there anything that should be scratched? Is there anything there that is not consistent with our mandate?

I think we should try and incorporate a bit of what Mr Hastings has been saying, which connects outcomes and job creation. You might put that in where we're talking about cost-effectiveness. Maybe that fifth bullet point could be rewritten to incorporate it.

**Dr Gardner:** Yes. We'll recast the fifth bullet point to include those points.

**The Chair:** Is everybody comfortable with that, rather than a seventh? I think if you get too many bullet points, the objectives start to weaken. I'd like to keep it within six if we can. Are there any here that should be pulled together?

**Mr John O'Toole (Durham):** I apologize for being late. I was at a meeting this morning with one of the transportation industries, the motor vehicle association. It does fall into the four broad categories outlined in the subcommittee report under item 1, alternative means of producing electricity.

Emissions trading is a huge issue under MOE. It's been designed going in to favour OPG and this sort of fragmenting of the producer side of the business and competition coming in. We need to have a really good understanding. I read the research paper on emissions trading and it was very broad, but the current emissions trading regime—the regulations are about to be published, and it's slanted completely in favour of OPG entering the competitive market. No one can get credits for generation, cogeneration and a huge amount of the emissions issue, which is what we're really dealing with, the trading regime, and I think this committee should have a position on that. It may fall under one of the objectives of reliance on fossil fuel resources or the broader one, which is producing electricity. By and large, it's the greater producer of all the manufacturing and industry sectors, with the exception, probably, of the petroleum industry.

I don't know how that fits in here, Doug, but we really have to be able to assess the emissions trading regime. You see, it's a huge economic argument. If we don't protect the fossil generation assets today, they'll be stranded. If you bring on new cogeneration, whether it's power cells, water or wind, you'll strand those old assets, like \$5 billion, \$6 billion, \$8 billion. I'm convinced that's why it's being designed. So how does that fall into this?

If we're dealing with emissions, ultimately at the end of the day this is about emissions and a clean environment—I think the researchers might pick up on what I'm talking about.

**The Chair:** A couple of things quickly come to mind. One is that maybe we should set aside one or possibly two days of hearings to address emissions such as these.

**Mr O'Toole:** Yes, because they are the largest producer issue. We talk about cars and we talk about industry, but if you're not talking about changing the power generation side, you aren't dealing with the whole NO<sub>x</sub> and VOCs issue at all, period, or CO<sub>2</sub>.

**The Chair:** There are some things we'll be able to deal with, and down the road we'll have to decide there are some things we can't handle that are beyond the ability of the committee's time frame.

**Mr O'Toole:** Actually the terms of reference of this committee are specifically for when the market opens, and the market is power generation. That's the market we are talking about. That's the purpose of this committee. We can talk about growing more corn for ethanol and all that kind of stuff, but it's a very small part of the equation. We're looking at 10% of the problem, and 90% of the problem is on the generation of electricity side.

**The Chair:** The mandate is a very open mandate. Just coincidentally, we're to report at the time that the market opens up; it's not specific to that. It's extremely broad, but I appreciate the point you're making, that a lot of the concern is that a significant amount of the pollutants do come from the production of electricity.

I think maybe we should make note of your comments so we can maybe spend a day or two to zero in on this particular issue. Maybe we should be doing it before Christmas. I'm open as the Chair.

**Mr Ernie Parsons (Prince Edward-Hastings):** I don't know if this off topic or not, but I remember reading last weekend—I can't give you exact details—that the US environmental is unhappy with our pollution credit systems. I can't remember the exact details.

**Dr Gardner:** I think there was a note to that effect in the research memo that we provided to the committee. We can certainly have our researcher who did that memo come back and talk to you, but it may be that you want to hear from the various sides of this debate directly.

**Mr O'Toole:** I agree. I hate to extend it but I really think it's important, if we're at the high level here, where we're going to spend the most time for the most results. To have an understanding of what is a foregone decision, if it's a policy decision, it's already been made by MOE and the government to favour traditional forms of generation for the sake of economics and the rest of it. If we know that going in, then we don't need to spend a lot of time looking at windmills or wind generation, whatever you want to call it. Do you follow me, though?

**Mrs Bountrogianni:** I follow you.

**The Chair:** Some of what we may be discussing here—you're talking about decisions that have been made for today. This committee is looking at decisions to be made in the short term and long term and to make

recommendations to aim toward something, whether it's for 2015 or whatever, to start making policy changes to make those kinds of conversions. What they're dealing with to quite a large extent is for right now, and I think we're looking further out than right now.

**Mr O'Toole:** Yes. They're going to commit capital and resources which are longer-term. Those kinds of investments are 10-year or 15-year windows. If you write the right signals in terms of credits or rapid depreciation allowances and all those kinds of tax tools and incentives—but the regulations are to be published shortly under those emission guidelines. They are on the EBR, or draft forms are about to be put on the environmental posting, and it's my understanding that we're moving strongly toward capping, that that's not harmonized with the US and that will not favour competition for the cleanest form of production.

I won't go on about it because the experts are sitting up there and not over here. I've made my point. We should hear about it, and before Christmas.

**Mr Hastings:** I think Mr O'Toole is on to something very significant, and that is about these draft regulations regarding capping. If we're going to look at the financial side of alternative fuels and how you need economic incentives to pump prime, some of them—and we're looking at air quality. Is air quality one of our objectives here?

**1050**

**The Chair:** All pollutants are, yes: air, water and land.

**Mr Hastings:** If it is, then I think we'd better be looking at what are the positive-versus-adverse implications of capping for tradable emissions. If you look at the American experience, they have clearly gone in the other direction. They've created an economic system around them. They actually trade these emissions—the NO<sub>x</sub> and VOCs—I think on the Chicago board of commodities. It might be a good area that we get a video conference with whoever originated that system that the EPA has mentioned. It'll give us a good education on how tradable emissions are working in the US, at least in those states that have huge high-sulphur coal generating facilities: West Virginia, Illinois, Ohio, Michigan. They are trading among some of those companies and there is an economic value to them. We don't need to know all the intricacies, but I think we need to get a picture filled in that, in my mind, is blank right now compared to the capping, which these draft regulations favour. I think it would be an interesting contrast to see where we have capping in other situations. The Americans, I think, had capping in Michigan. Why did they move away from it, if they did, and go to this more open, competitive system? I know the critics say, "You're just trading one chunk of dirty air for another," but we need to be looking at this situation for down the road.

**The Chair:** The term "emissions trading" has a kind of negative connotation to it, but certainly—

**Mr Hastings:** Credits.

**The Chair:**—to mean cleaner, you need to move in a stepwise fashion, and that's a methodology as we—



**Mr Hastings:** Tradable credits; whatever you want to call it.

**Mr O'Toole:** If I could, I think we have perhaps gone into the minutiae of the discussion.

I will say there are really three tools to deal with mitigating emissions. One tool is voluntary emissions and standards by sector, whether it's the petroleum, the auto, the manufacturing, the mining.

The next tool is the economic incentive, which is the trading tool, and it isn't a one-to-one. If I reduce by so many pounds or volume of NOx, I don't get a one-to-one credit, but if I do reduce, I might get 100 reduction, but I only may get 60 or 70 credits. They use various incentives. They also use incentives for capital depreciation. If I'm putting in a new furnace that's friendlier, the credits I get help to fund it capitably and it will also improve the depreciation.

The third one is the regulatory one. The regulatory one is the enforcement one and it's the capping one. That's the one we're moving to. It puts overall aggregate thresholds on the whole economy, and you've got to meet them and there are no incentives to meet them. When a company, a large producer, is saying, "OK, I'm going to produce something in the Ontario context," and I corporately look at it and I say, "Well, gee, Mexico's a developing country. I'm just going to put all my new investment there because there are no rules, capping or trading"—so we lose the jobs. We reduce the emissions; we reduce the economy.

I think it's a loser. I, personally, am going to be bringing it up in the Ministry of the Environment estimates. We're working on the question now. I'm not happy about it and I need to have the resources. A few things you've given me have been helpful, but—

**The Chair:** I think, Mr O'Toole, you've summarized very nicely the three groupings of instruments, and most, if not all, do fall into the policy—

**Mr O'Toole:** It's what we're talking about: policy-level stuff.

**The Chair:** I think it's kind of neat to point that out, maybe in the overall preamble, that they do fall into that.

We need to move on. Possible objectives: I'm hearing that item 5 should be modified. After that, I think we can continue and we'll have a look at item 5 later. So I trust that the committee is comfortable with that.

The organization: we've talked a bit about that. On page 3: "Recommendations and Organization of the Interim Report." Other than some of the suggestions that have been made, is the general grouping in order? At the back there's a whole bunch of public policy listings, and it's been suggested by Dr Bountrogianni that there be subheadings there, just so that at a glance you can find which ones relate to what without having to go back to the body of the report or to walk down through the different bullet points. I guess I mentioned—and it was going to be automatic anyway—getting the committee in there and that information.

Is there anything else, without getting into the detail of the report—we can talk about that in a few minutes—in

the overall layout of it, with the preamble and with the fact that we're talking about the different ministries at the beginning and then we're talking about electricity and then going through in those groupings? OK, let's move on then.

How do you see some of the detail in there, some of the public policy questions? Some of the thinking is that this report would be tabled in late November. It could be tabled sooner, I guess, if everybody's in agreement. We could get it polished up and then we could move on to other things. There are a lot of questions in there in public policy. Is anyone uncomfortable with some of the positions that staff have put us in? Do you like what's there? Do you dislike it? Do you want to look at this in more detail for a meeting in a week's time?

**Mrs Bountrogianni:** I'm certainly open to changing it, but I think it's perfect for the stage that we're in, in this committee. In other words, we're asking the questions. We're still open and we're asking the questions. I think they're very well written. They will certainly help me in future hearings or future conferences in what to look for, what to ask for. I think it would be premature to answer them, so I think the report is—

**The Chair:** So you're reflecting the fact that we're still in the searching stage—

**Mrs Bountrogianni:** Information gathering.

**The Chair:**—information collection. This on a Web site. This is an interim report that can be distributed to those who will be making presentations to us later on.

**Mr Parsons:** any thoughts on it?

**Mr Parsons:** No. I agree with my colleague. These don't say anything at this point and they shouldn't say anything. I see them provoking thought at this instant and that's what they should do.

**The Chair:** It could also be argued that it says a lot. I'm teasing you a bit. There's a tremendous amount of information in there; I know what you're saying.

**Mr Parsons:** But you're wrong again. We don't know if you can put that in Hansard.

**The Chair:** Everything is in Hansard. You wanted to say something, Mr Richmond? Did I catch you out of the corner of my eye, there?

**Mr Richmond:** I've got a sense here of what you've agreed to and some suggestions in terms of revision of this. Would it help if I ran through that? Then if we had any other items on the table—

**The Chair:** I'm getting a feeling that maybe we're closer than I thought earlier. We talked about mid-November and tabling it at the end of November. I don't see any reason to hold it up that long. Maybe what we need to do is aim to table it at the end of October and have a good discussion. Today is the 17th; the 24th and then the 31st. Can the committee get a good look? I guess I'm concerned about what staff have put forward as public policy considerations. As I glanced over them in the short period of time we've had this week, I'm comfortable, but some of the committee may identify things as a bit out of line. I don't know.

**Mrs Bountrogianni:** Right in the preamble, it says, "This report is presented as a discussion paper to facilitate more intensive public debate in the new year." Nowhere in here does it say that anything is engraved in stone. Perhaps that paragraph can be made stronger, if that will make some people feel more comfortable. I understand your point, Dr Galt: perhaps setting ourselves up in the public's mind, because there is a lot of information here, a lot of possibilities; perhaps more of a disclaimer that these are, at this point, discussion points, that we are not tied to any one of these, except what the objectives guide us to look at that. I don't know if that makes any sense to the researchers.

1100

**Dr Gardner:** As Jerry was saying, we've heard what you want to do from here. We'll strengthen those points in the preamble; we'll adjust the objectives to add the job creation export development; there won't be any observations or recommendations at this point; we'll pull out the public policy questions that have been identified. One thing you might consider—and we'll explore this for you—is whether an executive summary might be effective: a short executive summary, with the policy questions at the start. We'll pull them and we'll group them.

We can do all that. Then you look at that one more time, I think, following the Chair's concerns that you're really happy with the policy questions, and then that's it.

**Mrs Bountrogianni:** I really liked that last suggestion from the research department, and I like the idea of an executive summary. I think the general public who are interested would go to the executive summary. Those who are interested technically or in policy would go to the body of the report. That way, everyone who wants to get educated on this can.

**The Chair:** Good. Other comments?

**Mr Miller:** Mr Gardner's suggestion sounds good to me. The executive summary sounds like an excellent idea. His recommendations all seem to make sense.

**The Chair:** To some extent, the preamble does what an executive summary might be—how long are you thinking, in terms of executive summaries? Two or three pages?

**Dr Gardner:** Leave it to us. We'll figure something out.

**The Chair:** Sure.

**Mrs Bountrogianni:** I have another point of business, but not to do with this.

**The Chair:** OK. Anything else in the detail? I may be pushing you just a little much here. I just want to give staff as much guidance as we possibly can and not send them off—they have been phenomenal so far in following the direction that we're looking for and packaging this. It's a pretty extensive report.

I guess we'll move on, if no one is seeing anything. But I think we need to have one two-hour session; we need to go through it with a fine-tooth comb, almost page by page, and make sure everybody's comfortable. So

would we aim for the October 24 to do that? That's a week from now.

**Dr Gardner:** My recommendation, actually, would be to meet in two weeks, mainly just from the logistics of our doing the revisions and then getting them in your hands in enough time to look at them. I think you want them in your hands for a good couple of days. You're incredibly busy and you need to balance this with other things.

**The Chair:** We need it in our hands for a week.

**Dr Gardner:** Yes. So that gives us a few days. There aren't many changes, but we'll play with the executive summary to make sure that's a good, effective communications tool for you, because that's what you would be using down the road to hand out to constituents or to interest groups: a short piece. We'll work on that. Then, as you say, you've got a good full week to look at the questions and make sure you're comfortable with them.

**The Chair:** Basically, the committee has this in their hands, and what's going to be added is an executive summary. So there's no reason to wait until you get the executive summary to start reading the whole thing.

**Dr Gardner:** No. Good point.

**The Chair:** Let's say you have two weeks. We're going to go through this line by line on October 31 and then we're going to table it. Am I pushing too hard? Then we'll get on in November with moving the next step of the researcher—

**Mr O'Toole:** Yes. I haven't read this, but seeing that much of what I've talked about is in here, we're looking at policy alternatives. There's a great deal in here that I wasn't aware had already been done.

**The Chair:** There are two things we might want to meet for on October 24: one is to confirm or to adopt the recommendations of the subcommittee on the researcher. The subcommittee plans to do the interviews next Tuesday afternoon. Then the researcher can get started, if that's approved. The other would be that we could look at the other part of this report and save the executive summary until October 31, and if there's anything you want changed in the existing report, it could be done at that time. Then all we'd have to approve on October 31 is the executive summary. Is that in order?

**Mr O'Toole:** Yes. If we're going to be using that as a constituent document to be handed out, I think that's a good format, and we should make sure it's friendly, readable, and addresses what we think needs to be communicated; short-, medium- and long-term. It will become a sort of issue-based document sometime in the next two years. Hopefully it doesn't just get shelved.

**Mrs Bountrogianni:** So will we meet, Mr Chair, next week?

**The Chair:** I suggest that we at least plan to meet for an hour. If we can get a researcher approved, then maybe we can semi-approve—if that's a legal terminology—most of this report and do the executive summary on October 31, and on the 31st we still have one more crack at the bulk of this if people didn't get a chance to get over all of it and they identify something in the meantime.



Leaving it all for one two-hour period might be longer than is necessary.

You had something else?

**Mrs Bountrogianni:** I have a question for the committee. I have been fortunate enough to get an intern who's very interested in this committee, as I know you have, Dr Galt. My intern's name is Lyndsey Saunders. My question is: provided that it's approved by the clerk and the Chair, and provided that Lyndsey wishes to—I haven't even asked her if she wishes to—if there's a conference that she is interested in going to, may I send her from my part of the travel budget, provided the conference is approved by the clerk and the Chair?

**The Chair:** My understanding is that there is some money in their budget to travel. When it comes to a conference—

**Mrs Bountrogianni:** Oh, OK. It wouldn't be extra money; this would be from whatever each member is allocated.

**The Chair:** Alternative staff—

**Clerk of the Committee:** Our travel budget is specifically for committee members. Usually we don't even cover staff, or anybody else.

**Mrs Bountrogianni:** OK. I was just asking. I know now. I'm glad I didn't ask her if she wanted to go, then.

**Clerk of the Committee:** I can double-check as well.

**Mrs Bountrogianni:** Please check. If not, that's fine. I was thinking along the lines of her professional development as well as my time constraints, but that's fine.

**The Chair:** I would suggest it might be considered if we're taking a bus, plane or whatever and there are empty seats. Then, I think, maybe the committee could reconsider. I'm speaking—

**Clerk of the Committee:** I have some experience with that. Every charter plane or charter bus that is staffed, as long as the committee agrees, you can bring her on.

**The Chair:** Then the intern would be responsible for accommodation, or at least their budget.

**Mrs Bountrogianni:** Again, it's my first time having an intern, so I'm sorry, I don't know.

**The Chair:** You may find out that several of us have interns. I'm quite sure Mr O'Toole does, and I think Mr Gilchrist does. There may be several interns keen on the same thing.

**Mrs Bountrogianni:** Excellent. As I mentioned earlier, she is very keen on this committee. She'll be key in summarizing what I've learned for the committee and what I've gathered.

My second question based on that is: there is a conference I have mentioned that I would like approved that I intend to go to. I will confirm very shortly, I'm just waiting for the political situation a little bit. That is the annual Renewable Energy Summit in Europe, November 20 and 21. Can I have approval so that, in case something happens and I'm either not at a meeting or whatever and I need to make travel arrangements, I can start looking into it?

**The Chair:** At this point in time you do not have that approval, so maybe we can do it at this meeting?

**Mrs Bountrogianni:** Yes. I don't have the approval.

**Clerk of the Committee:** Do you want to move it as a motion?

**Mrs Bountrogianni:** Is that what I have to do? OK. I move the motion to allow me to attend the annual Renewable Energy Summit in Brussels, November 20 and 21, 2001.

**The Chair:** Do you have any feeling on overall cost?

**Mrs Bountrogianni:** It's an expensive conference. It's about \$1,500 for the conference alone. The flight is \$800, and two nights' hotel.

**The Chair:** So \$3,500, that kind of thing. OK, just so staff have something to work on the budget. Discussion? Those in favour?

**Mr Miller:** What? Sorry.

**The Chair:** There is a travel budget for the committee of \$80,000 travel and \$20,000—

**Clerk of the Committee:** Accommodation.

**The Chair:**—yes, accommodation—I was just trying to remember my zeros for a second there—that's already been approved by the Board of Internal Economy. It can be used on a vote by the committee.

I have one more here to put before the committee that's been presented to me by Mr Hastings. I don't know if you'd like to make that motion, Mr Hastings.

**Clerk of the Committee:** We haven't voted.

**The Chair:** We didn't vote on it. My apology. Further discussion?

1110

**Mrs Bountrogianni:** It is an expensive conference and I almost didn't go because of that. That price, believe it or not, is with the 30% government tax rate; it's 30% less. But it does cover a lot of Mr Hastings's concerns about the financial implications of implementing a lot of these new energies in Europe. Again, you can't generalize completely to North America, but that's a good starting point as well. I think it will be very useful.

**The Chair:** Further discussion?

**Mr Miller:** If you go to a convention like that, do you then report back to the committee on what you learned?

**The Chair:** Yes.

**Mr Miller:** That sounds very worthwhile.

**The Chair:** It's something the committee had discussed earlier. One of the things committee made a decision on was to direct it to the Chair to make all the decisions on approvals to go. The Chair felt, with some added information that came forward later, a little uncomfortable giving those approvals, so I've asked that it simply come before the committee.

Absolutely, they must bring a report back to the committee. I might not sign their expenses if we don't get such a report back. I've got an axe, a big hammer here.

Those in favour? Those opposed? Motion carried.

I have one before me from Mr Hastings. Would you like to present it or do you want me to run over the summary of your letter?

*Interjection.*

**The Chair:** Mr Hastings is requesting to attend the International Solar Energy Society 2001 Solar World Congress, being held November 25 to December 2 in Adelaide, Australia. Do you have any feelings on cost or an over-and-upset amount that it might evolve to, Mr Hastings?

**Mr Hastings:** I'm looking at the conference costs at mid-term, which is about now. It looks like it will be about \$700 to \$800 in terms of registration. There are also a number of additional things they've tagged on which will probably set it pretty close to what Marie is talking about. I estimate the cost between \$5,000 and \$6,000.

**The Chair:** In total?

**Mr Hastings:** In total. I'm looking at reasonably lower-priced hotel accommodation to keep it within range. If it's a lot less, I will make sure it is. But I want you to know that that's looking at the figure I've spotted in terms of accommodation. I haven't looked into the flight yet, but we're probably looking at, I would think, about \$1,400, from what I've seen on those flights before.

**The Chair:** Particularly if you can get one of the charters, but it may be more like \$2,000 by the time you actually—

**Mr Hastings:** I'll work on the best prices and the most affordable.

**The Chair:** Traditionally, what the others have been doing is putting forth their own motion. Would you like to move that you attend that conference?

**Mr Hastings:** I would like to have the committee approve my attendance at this conference of the International Solar Energy Society in Sydney, November 25 to December 2, 2001.

**The Chair:** And report back to the committee.

**Mr Hastings:** And to report back with substantial detail on the hearings and recommendations.

**The Chair:** Any further discussion? Those in favour? Those opposed? Motion carried.

I don't mean to be nasty with this next comment, and it's just for all those who are travelling: it would be very nice for the report to come in at the time the expense account comes in. I think it's very important that we don't get away from getting a report. One of the reasons I'm not asking to travel is that I don't know when I'd find time to write a report to bring back to the committee. So I think I'll wait until after Christmas at least.

Is there anything else the committee would like to bring up at this time before we adjourn? Staff, have I missed anything that should have been covered?

I think then it's coming out, as I'm sorting and listening, that we've got the 24th to approve a researcher and then look at as much of this as we can. Please read it and come up with any suggestions. I think we're awfully close to having this, and maybe we can get it tabled the first week in November. We'll finalize it on the 31st. There might be a couple of pieces of wordsmithing that have to be done at that time, and then maybe the first meeting—

**Clerk of the Committee:** Are we going to have it translated?

**The Chair:** I hadn't even thought about that question. The clerk has asked me about translation. I think that's standard, that it's required. Does that mean it'll be held up for tabling?

**Clerk of the Committee:** Yes. If we don't want to incur costs for having it done on an expedited basis, it's at least six business days.

**The Chair:** Oh, six days. OK.

**Mr O'Toole:** May I comment on that? There have been reports presented that are awaiting translation, or will be translated. So that's how I'd present it. It would be understood that at some time it would be filed in the other official language, if that's more efficient.

**The Chair:** Actually, I don't know if they'd like to do it that way, but I think most of this report is almost there, so if they wanted to start and then make the minor changes—but I have no idea of the workload or what the procedure is.

**Clerk of the Committee:** No, we have to wait until the final report.

**The Chair:** Until it's final, OK.

**Mr Hastings:** At the next meeting, could we start looking more at fleshing out the second round of hearings, if we're going to have them, and the timelines—late January or early February, or only one week, all in Toronto. We don't need specifics right now, and I see you're still looking for some umbrella groups for submissions. So that is something we should have pretty well finalized if we're going to do it, the timelines and the days and if it's going to be only in Toronto, so the people who want to submit can be notified and they're given 40 days plus, whereas perhaps they weren't in this first round.

**The Chair:** That's something I should have been thinking of as the Chair. Maybe what we could do is ask the clerk to look at these umbrella groups that we haven't heard from and some that during the hearings we said, "Maybe we should hear from you in more detail." Maybe you could make a list for us and put it in front of us for the 24th meeting. Then, once we have a list before us, we can say aye or nay to the list and to some of the items in it. That would get us moving along. Would that be in order? Any objections?

**Mr Hastings:** One specific group we should add: I see a heading there for the Canadian renewable energy—I've forgotten the name, but there's an article that Jerry attached, I think, from Richard Brennan about the committee. The head of that group should probably be included as one of the umbrella groups for January.

**The Chair:** To be of assistance to our clerk, would members of the committee, if you strongly feel that you want certain groups to come before us—and we're talking umbrella groups right now; we're not talking individual companies, but rather the provincial organizations of whatever—please let Ms Grannum know. I think that would be helpful to her, and if she can have something before us in our hands next Monday, then we



can discuss it as a third item on the agenda of that day. Thank you for bringing that one forward.

The other one is the promotion of the committee, and we can start looking at some of those possibly after constituency week, in late November or early December. We still seem to have so much in the news about terrorists. It's almost impossible to get good news on, such as what this committee is doing, but we'll get some of those things rolling as we move down the road.

**Mr O'Toole:** I really have two questions. One is to find out if we have a list provided somewhere—I think we do—of the current people who have made requests to appear.

**Clerk of the Committee:** Yes.

**Mr O'Toole:** Could you verify if the Motor Vehicle Manufacturers' Association is on there?

**Clerk of the Committee:** Yes.

**Mr O'Toole:** That's good. Then I don't need to follow up.

**The Chair:** There is a list someplace.

**Mr O'Toole:** Yes, I think I'd seen it, but I wasn't sure.

**The Chair:** Maybe Ms Grannum could just send that out again.

**Mr O'Toole:** She just verified that. Is it in the report?

**The Chair:** No.

**Mr O'Toole:** But is there a list of deputations?

**Clerk of the Committee:** That we've heard from? It's in there.

**Mr O'Toole:** Yes, I thought so. It may have been in here.

**Clerk of the Committee:** But additional people are on a list. You've seen it before, and I updated it.

**Mr O'Toole:** Yes, I have it. Good.

The second question I had was that one of the researchers mentioned California. In light of my education at this point on the issue of emissions—and my initial intention was to look at something like ITER, a very highly technical futuristic kind of project; it's more of an economic thing than an actual energy producer—I may be more interested in the point you made this morning, which was that California has been struggling both with regulating generation and the whole issue. As I'm getting more educated, I'd probably be more interested in looking at that jurisdiction because it is newsworthy, it is being watched. They have been pushing on the auto side, the emissions side, the power generation side. They are looking at some of what I think we should be looking at, more short-term, mid-term. I would ask you to maybe find out for me what relevant conventions or other forums are available between November and, say, February. I'd be more interested in looking there than at ITER or wind. I think wind is out there in the future. John's looking at solar, so he's in Australia; he can look at wind too. As you come out of Sydney airport, there are two huge windmills. Each one is five megawatts, huge, bigger than the CN Tower. Can you follow up on that for me, just research that for me? Thanks.

1120

**Mr Parsons:** Further to what John's just suggested, I'm sensing you're asking in that one particular area. I'm wondering, though, the researchers on a day-to-day basis are probably coming across conferences or interesting sites, if they could maintain a current list of all the areas. I'm finding biomass particularly interesting. So I'm wondering if you could just weekly or every couple of weeks, if you're aware, produce a new list.

**The Chair:** On that one, there is a biomass conference in Florida, December 17 through December 21 or 20. It was moved from September because of the terrorist attack. It might be a neat one to go to.

**Mr Parsons:** I would have some interest in that, yes.

**The Chair:** The other thing that's going through my mind, keeping us abreast of conferences and activities and thinking through what Mr O'Toole was commenting on and our researchers earlier, I'm wondering if between our researchers and Ms Grannum we could put together visits to other provinces and possibly California that the full committee could take. Maybe looking ahead, we'll say the first week of February, we could get a small charter that would be more reasonable. I thought that one we did from Ottawa-London-Toronto was rather expensive, but it was very short notice.

**Mr O'Toole:** The one we did on the agricultural committee I was on was—but I don't know if that's possible.

**The Chair:** It was a natural resources plane there. We need something a little larger to take the whole committee. But if they could look at the logical points to visit in Canada and California—I think California, from what I've heard, is a place to go to see a lot of North American activity. If that can be afforded with the travel that individual members are or are not doing—I don't know if every individual committee member is going someplace, but certainly several will be. So if you could bring that before us as a package.

**Mr O'Toole:** I would be very happy to be part of the dynamic of a group, whether it's the whole or most of it, that kind of thing. If there was some way of being more efficient and maybe one or two members didn't go—how many eyes can see the same thing?—I think we should still try to press for that.

I think Alberta is the leading resource-based generator. Their baseload is coal. Can you believe it? They have the most natural gas and we're fighting for natural gas. It's unbelievable; I don't get it. But there are infrastructure questions that I'm very interested in. What are the economic trade-offs? If I would pick two places, I'd be very interested in energy production, emission and tax strategies dealing with capital and investment. I'd like to look at Alberta and I'd like to look at California. They're the two leads. They're connected in policy and direction. They are dealing with free trade issues. The language under NAFTA says that in all cases we must supply—that's what NAFTA says—the United States. It's a fascinating area.

**The Chair:** If we're doing that kind of a briefing, BC with Ballard might be another stop, and there may be

others that staff will identify. Like yourself, if we can do it with the group dynamics, I think there's a lot of advantage there.

**Mr O'Toole:** I'd enjoy that, because we would be talking while we're travelling.

**The Chair:** On the Premier's Task Force on Rural Economic Renewal, we were able to make two two-hour meetings each day that we were out in significantly different provinces and states. By having a small charter, the efficiencies of getting around and seeing are so much greater, provided that what we want to see isn't too far from an airport. If we land at Malton and you have to go down to Darlington, a lot of time is lost. But anyway, staff will have a look at it and maybe bring it before us to look at either on the 24th or the 31st.

**Mr Hastings:** A subject for the subcommittee to look at, as you mentioned, is the promotion. Since you are looking for umbrella groups for your later second round of hearings, probably the last round, one of the items a subcommittee should look at is having something on the screen in the next week or so that talks about the umbrella groups and have it saying, politely, that the select committee is looking only for those umbrella groups that have not had an opportunity to present. I think we should have the date of the next round of hearings settled after next week so they can be posted on a number of the channels around here that don't get a lot of use. Let's post that on one of the channels for January, if the committee agrees to the second round. Then that can be on there all through November and December, with a final notice to submit by January 10, or whatever the day is. That's the best promo tool you have.

**The Chair:** I think there are two things going on here. One is that we want to hear from some of these umbrella groups before Christmas, in late November or early December. We'll do it right here. Then, with this interim report out and with the information we get from research on policy, having all of this out on the Web site, we'll have hearings probably in late February or early March. I don't know if you want to set those dates at this point in time.

**Mr Hastings:** No, I don't think you should, but in the next couple of weeks we should have some stuff settled that can be put up on the screen that says a second round, or however you phrase it, will be held as a result of the interim report. The interim report—I know that's not settled yet—will probably be out or published by December 30. If you can't do that, I wonder if Bob could think about these questions that have been posed. Could some of them be posted on the screen, if not on the Web site?

**The Chair:** I think from what we've been hearing, the discussion here is that when we talk to these umbrella groups, it won't interfere or change our interim report. I think we're going to get the interim report out in early November. We'll hear from these people while the research is going on and find out from the umbrella groups anything that we've missed getting into the interim report. Maybe that could be part of a second one,

when we bring out the information the researchers found on policy in other areas. Most of my understanding, when we're meeting with these umbrella groups, is it would change the first interim report, and then we'll go out for hearings for anybody who wants to speak to us in late February or early March, responding to what we put on the Web site as it relates to our interim report and possibly a second interim report or letter, or whatever you want to call it. OK? That's my understanding of where we're going. But putting it on the channel to advertise it—

**Mr Hastings:** In the past, only notices of hearings have been put on. What I guess I'm asking is, when the interim report is completed, can some of those questions then be posted on here, or is that beyond our normal possibilities?

**The Chair:** Or once we have it on the Web site, direct them to a Web site?

**Mr Hastings:** Yes, either way.

**The Chair:** We're looking at November 21, November 28, December 5 and December 12. What I'm looking at right now are four Wednesdays when we could have these umbrella groups come in and present to us. November 14 is constituency week and the 7th is the first week in November, so I would say we should be able to cover and give adequate time to those groups. I guess a half-hour?

1130

**Mr O'Toole:** I'm not interested in constituency week. I've got everything booked.

**The Chair:** No, no. I'm just saying—

**Mr Hastings:** Are those dates for the hearings approved by the subcommittee or by the committee?

**The Chair:** I guess ultimately they're approved by this committee, but the subcommittee must come in with recommendations.

**Mr Hastings:** If they are, then can those hearing dates be posted on here? That would be a good—

**Clerk of the Committee:** The subcommittee meets to hash out the dates and who they want to invite and then it's reported back, and if that's the recommendation and it's carried, we can post them on the Internet, the Ontario parliamentary channel. We can use Canada NewsWire to get some information out there as well. So there are lots of opportunities.

**The Chair:** Make it a point for the subcommittee next week on October 23 to pull that together. OK?

We've covered a lot of things I wasn't even thinking about.

**Mr O'Toole:** These are housekeeping-type items. I'm finding the information I received very useful. You said earlier the amount of time is—I've been kind of reading it, so I'm changing my focus.

Questions that I've read here in Dr Galt's response from the Ministry of Transportation: how did those questions formally get recorded and formally responded to? I want to know the process because I have questions that have been posed, in my view, and haven't been



responded to, unless I haven't read everything, one of which is full cost pricing.

I'd like the Ministry of Energy, Science and Technology to tell me what "full cost pricing" means, what it includes. Does it include contaminated waste, the cost of doing that, closure of nuclear plants? They tell me it's four cents a kilowatt. That's baloney, because they aren't pricing the cost of decommissioning and all these other nuclear things.

So how do I go through to ask those kinds of questions and have a formal response from the people who are responsible?

**The Chair:** I'll turn to the clerk for a response there.

**Clerk of the Committee:** The ministries have been responding to the questions that we sent out to them based on the first round of hearings. So they've responded. If you feel they've missed, committees have in the past invited the ministries back in.

**Mr O'Toole:** I want it written. I don't want to have the general—

**Clerk of the Committee:** Then you can just send a letter.

**Mr O'Toole:** Just formally write it to you?

**Clerk of the Committee:** Yes.

**Mr O'Toole:** Send it to you, and you'll send it, and then that gets back.

**Clerk of the Committee:** We can send it off, and then they'll respond, yes. It's documented and exhibited for the committee.

**Mr O'Toole:** That's right. Yes.

**The Chair:** You'll note in this package the first question was mine, but the other four were Mr Gilchrist's.

**Mr O'Toole:** Well, I know I've raised full cost pricing and I've raised emissions trading. I believe that it's not deliberate, and I'm not saying anything here. I just want to know the process. I'll be writing to you, or the Chair I suppose is probably the best, and they'll be questions that I want answers to.

**Clerk of the Committee:** The ministries are given the Hansard as well and told to double-check the Hansard in case we missed anything.

**The Chair:** It may not have been clear enough in the committee hearings. Mine, I just specifically asked, "Could you get that information?" You should be able to ask in the committee hearings.

**Mr O'Toole:** I thought I was.

**The Chair:** Put it in writing, and then there'll be no question.

**Clerk of the Committee:** Put it in writing, we'll send it off, and they'll respond.

**Mr O'Toole:** Yes. Good. Thank you.

**The Chair:** Other points that need to be covered at this meeting?

**Dr Gardner:** Just to fill that out a bit, Mr Chair, we'll work with Tonia to go back to the list of questions that were posed to the ministries and see what they've answered so far, and if there are any gaps, that may help to speak to Mr O'Toole's point.

**Mr O'Toole:** Excellent. Very productive.

**Mr Hastings:** I certainly remember the question Mr O'Toole asked about the emissions.

**The Chair:** Sorry?

**Mr Hastings:** I recall when we had all the—

**The Chair:** It sounds familiar. But I just got my answer today.

**Mr O'Toole:** Yes, I see that. That's why I was asking. Yours come first, as usual.

**The Chair:** I just mention this to the clerk: I think with today's discussion we have pretty well laid out a road map from now until next May, more or less. I've asked her to rough out a proposed schedule that we're headed down so we have it in front of us. It's been quite a struggle with this committee just getting—and I say that collectively, for all of us—a handle on where we're going. We started out with some hearings just to give us a baseline. I think we're now evolving. I'm starting to feel pretty good about the direction that we're headed into. My apologies maybe for not giving a little more direction, but it is the committee's decision, not mine. I think it's starting to jell here.

**Mrs Bountogianni:** I think it's excellent, Chair, and I really want to thank the legislative research department. I think they're key in steering us in the right direction.

**The Chair:** Exceptional.

**Mr Hastings:** I'd also like to ask Bob if there's any ministry that wasn't before—correct me if I'm wrong, but we had those initial hearings last summer in the Superior Room of the Macdonald Block across the way, and I think a couple of us asked for ministries that were not there. For example, I don't recall the Ministry of Health being there. I guess they were, but I don't—

**Clerk of the Committee:** No, the Ministry of Health was there.

**Mr Hastings:** What ministries did we miss that weren't there that day, that were asked by either myself or Mr Ouellette?

**Clerk of the Committee:** Economic development and trade, housing—

**Mr Hastings:** Yes, housing by Ms Churley.

**Clerk of the Committee:** We have that on the list, so we've got that on record.

**The Chair:** I thought all the ones invited appeared.

**Clerk of the Committee:** They did.

**Mr Hastings:** Yes, but municipal affairs and housing weren't there.

**Clerk of the Committee:** We didn't invite them.

**Mr Hastings:** Ms Churley wanted them to review energy conservation efforts, and also economic development and trade.

**The Chair:** There were two or three ministries that came to mind afterwards that maybe we should have invited but didn't.

**Mr Hastings:** Municipal affairs was one for sure, and economic development and trade.

**The Chair:** That was one that wasn't invited.

**Mr Hastings:** Those two weren't there and we need to hear from them; a couple of hours or half an hour from each of them.

**The Chair:** OK, we could pick up some of the ministries. Maybe we should hear from the ministries that came to mind afterwards that we didn't invite at the time. Good point, Mr Hastings.

**Mr O'Toole:** I'd just like to file a recent press release from the Globe and Mail—today, actually—on the ITER project. I think other members should see it. It's the project I've talked about. It's a good article. It's not by a politician; it's by Peter Barnard.

**The Chair:** General information may be interesting. I've asked research to look into an article in the Globe and Mail in August suggesting that maybe all oil and gas are not necessarily fossil fuel in origin, that maybe down deep in the earth micro-organisms and/or other chemical reactions create methane, which can lead to natural gas, which can lead to oil. It's rather an intriguing philosophy. I'm not sure there may be that much out there, but I've asked them to look into it anyway. Maybe the term "fossil fuel" is not totally accurate, just to toss some confusion into what we're working on.

I don't have anything else. Thank you for the discussion and where we've gone. I think we've helped to get this road map in place of where we're headed. It's much appreciated.

Mr Bradley, do you have any comments?

**Mr James J. Bradley (St Catharines):** I do not. I had somebody monitoring this meeting. Unfortunately, I had another meeting today.

**The Chair:** Yes, I'm quite aware of that. We appreciate your coming in.

**Mr Bradley:** Too many conflicts.

**Mr O'Toole:** Just administratively, I'd like to introduce Nathan Fisher, who is one of the legislative interns who will be joining my support staff, and I think Mrs Bountrogianni has someone as well. You may see Nathan around. He's a PhD candidate, so he'll be a wonderful research resource for us to use.

**The Chair:** I think as a committee we may be in trouble, with all the interns monitoring us.

**Mr O'Toole:** I might be.

**The Chair:** We may have a rough road over the next few months. It's great to have them with some of the members of this committee and we look forward to their input and their ideas of where this committee is going.

If there is nothing further, we'll adjourn until next Wednesday. Just to summarize, we have a few specifics we'll be looking at next Wednesday. We'll be looking at approval for a researcher, we'll be looking at some of this report at that time and we'll be looking at some other things that research have had time to put together: possible travel arrangements later on and a list of possible umbrella organizations that we should hear from. Please get through this report and be ready to comment on anything you're uncomfortable with next Wednesday morning. Then we'll try to finalize it on Halloween day as we look at the executive summary.

The committee stands adjourned.

*The committee adjourned at 1140.*











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Mrs Marie Bountrogianni (Hamilton Mountain L)

Mr James J. Bradley (St Catharines L)

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#### **Clerk / Greffière**

Ms Tonia Grannum

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Dr Bob Gardner and Mr Jerry Richmond,  
research officers, Research and Information Services



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## Legislative Assembly of Ontario

Second Session, 37<sup>th</sup> Parliament

## Assemblée législative de l'Ontario

Deuxième session, 37<sup>e</sup> législature

# Official Report of Debates (Hansard)

Wednesday 24 October 2001

# Journal des débats (Hansard)

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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCES

Wednesday 24 October 2001

COMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Mercredi 24 octobre 2001

*The committee met at 1005 in room 228.*

## SUBCOMMITTEE REPORT

**The Chair (Mr Doug Galt):** I call to order the select committee on alternative fuel sources. The first item we have is a report from the subcommittee on committee business. Would someone like to move that motion from the subcommittee?

**Mr Ernie Parsons (Prince Edward-Hastings):** Your subcommittee on committee business met on Tuesday, October 23, 2001, and unanimously recommends the following:

That Navigant Consulting Ltd be retained as consultant to the select committee on alternative fuel sources subject to the subcommittee negotiating the terms of the contract for presentation to the full committee for approval.

**The Chair:** Discussion? Do you want to make a comment, as part of the subcommittee?

**Ms Marilyn Churley (Toronto-Danforth):** Certainly. I should go on the record. The subcommittee interviewed three different firms that had bid, and we made a unanimous decision, as the motion states. Given the terms of reference and the short time frame, we considered this to be the best of the lot to do the work we need done for the month of November.

**The Chair:** Hearing no further discussion, those in favour? Those opposed? I declare that motion carried.

## COMMITTEE BUSINESS

**The Chair:** Should we look at some of these odds and ends and then go to the committee? We wanted to talk about the schedule. Has that been circulated to everyone? There is a proposed schedule in front of you, something I have discussed with the clerk and we also discussed at the last committee meeting. Does anyone have any concerns over the way the schedule has been laid out?

You'll notice on November 7 we'll sit down with the research consultant. Actually the one we have just approved will bring forward a tentative direction at that time that we can probably spend most of the two hours discussing. We have next Wednesday to confirm an interim report that we'll continue discussing this morning. We have four Wednesdays after constituency week to have hearings, looking at the various umbrella groups, and I

believe our clerk has some of those to be looked at at this time or a little later on.

We have taken the opportunity to suggest either the last week of December or the first week of February to look at committee travel, as a committee, to some sites in Canada, possibly California and whatever else there might be on return, and then starting roughly February 18 with public hearings. We do have a little complication there with the finance committee, as two of us sit on that committee, which might create some complications. We're getting our oar in the water first, and maybe they can work around us a bit or whatever.

Any comments on the schedule as laid out? This is of course subject to change as we move down the road, but just so that people would have some idea of where we're going.

The other comment I'll just quickly make is that I've been asked by a few people, "What's happening in early January? Can we make plans or not?" I see no problem in keeping the early part of January open. We might want to meet with the consultants maybe the third week of January or possibly when we're doing some of the travel in the last week. I'm not sure, but the probability is that we'll want to meet with them. Certainly the first two weeks of January are wide open.

**Ms Churley:** I was just wondering about the finance hearings and whether or not you're saying that we couldn't do it because of your other commitments, or will you be looking for a substitution for you on that committee?

1010

**The Chair:** To be up front, it's Mr O'Toole and I who sit on that committee, and in my understanding, select committees do take priority over standing committees. So I guess if we establish that those times are not available for the finance committee, then it's the whip's responsibility and/or the House leader's to make sure that substitutes are available.

**Ms Churley:** OK. Thanks.

**The Chair:** But I think by being up front, when they sit down as a subcommittee, which Mr Hardeman is on, and they can see when we're sitting and when we're not sitting, maybe there can be some flexibility with that committee.

**Ms Churley:** I just ask because, obviously, we have to be flexible in the schedule. But again, to the extent that I know which days we're sitting in advance, it helps me,

because I am constantly having to substitute people into other committee work that I should be doing, and it's a juggle every day to try to get to all these things. It would be helpful to know.

**The Chair:** We're trying to look ahead and get it laid out and stick to it as much as possible. Maybe we'll have, at our next meeting, somebody come back and say, "Something's wrong with this and we need to change." Unless it's really a conflict, let's try to stick to a proposed schedule. But I don't think it should be considered etched in stone that we can't make some modifications for the good of the various committee members.

So is there a motion to confirm this? At least it would be in the record.

**Mr John Hastings (Etobicoke North):** I'll move the general outline of the scheduled hearings. There are two considerations I think we should keep in mind, one being the last Wednesdays in the spring of 2002, when Tonia says, "report writing," that's really report editorial correction, right? My question is, how can we be doing report writing one week before the report is supposed to be finalized?

**The Chair:** I think basically the clerk has just plugged in those Wednesdays. I think an awful lot of those Wednesdays will not be used. Once we've finished public hearings, I doubt if we're going to sit down on March 4 to start. We're going to want staff to be working on that, so probably March 4, maybe March 20, we wouldn't be in. We'd be into it from March 27 to April 10, that kind of thing.

**Mr Hastings:** We have to have this off for French translation about six weeks before, I would imagine.

**Clerk of the Committee (Ms Tonia Grannum):** Just about eight days for translation.

**The Chair:** The report is to be in by May. It doesn't say May 1 or May 31.

**Clerk of the Committee:** At the end of May.

**The Chair:** Certainly at the end of May.

**Mr Hastings:** My second consideration is that we should keep some flexible time for maybe one day of public hearings if we get any surprising information coming out of the consultant's report after you've pretty well concluded public hearings at the end of February. Is there any issue that needs to be re-examined in light of new information that may arise out of either consultants' reports or any of the people who made submissions up to the end of February?

**The Chair:** I think at any time we can call witnesses before us later on. I think the real question here might be: is two weeks reasonable—in other words, eight days—to meet with delegations when they see everything on the Web site of this interim report; also the consultants and the researchers on policy, and we have that on a Web site and they're coming forward to suggest recommendations? Are eight days adequate, or is it too much? At one point, we had in here three weeks, and that seemed to be a bit excessive, so we're suggesting right now two weeks to look at hearings.

**Mr Hastings:** I would think it's fairly realistic.

**The Chair:** Eight days?

**Mr Hastings:** Eight days, unless you get a larger number of people notifying us that they would like to make a submission live.

**The Chair:** We do recognize there's an awful lot of interest out there, but anyway, that's what we suggested.

OK, Mr Ouellette, we're just looking at the schedule you have in front of you. Any comments? Are you comfortable with what's being suggested?

**Mr Jerry J. Ouellette (Oshawa):** Well, eight days, depending on where they come from. But are those eight days just here, or do we need to move to other locations in order to draw in other people?

**The Chair:** I expect we're travelling.

**Mr Ouellette:** We're travelling.

**The Chair:** That wasn't discussed, but—

**Mr Ouellette:** Is that just travelling within Ontario?

**The Chair:** I'm open.

**Mr Ouellette:** We're trying to get as much input as possible. We had quite a few people from west of Ontario who had difficulty making it here. Are there other places that would be closer to there, where if we want to stay in Ontario, we can go to Thunder Bay or Kenora to try and draw those people from Saskatchewan and Manitoba if there's important input we need to hear? The same for the Ottawa area as well. We did have some from those specific areas. That's something the committee should look at or discuss, how we want to approach that.

**The Chair:** Maybe we should consider in our week of travel, January 28, that maybe we'd spend time when we stop and invite specific delegations to present to us, possibly two, three, four, that kind of thing. If we're in Alberta or BC, we could at that time request—

**Mr Ouellette:** That's something that could be looked at, yes.

**The Chair:** We may tour the wind field site and then invite three or four delegations at that time.

**Mr Ouellette:** That sounds reasonable to me, but it's up to the committee.

**The Chair:** Further discussion? Hearing none, those in favour? Those opposed? Motion carried.

In connection with a communications plan, where we're at in discussions with the clerk, if everybody is comfortable, is that Sheldon Ens in the Ministry of the Environment—not minister's staff but ministry staff—will work with Tonia to write a communications plan.

**Ms Churley:** I'm glad you made that clear.

**The Chair:** I just wanted to clarify. As far as I know, everything is full steam ahead to do that. With the tabling of an interim report the first week in November, there is some urgency to get on with the plan. Hopefully at our next meeting, October 31, we can look at the plan and then be able to approve it and move ahead. Everybody comfortable? OK. I don't think we need a motion to that effect. It's just for information.

**Ms Churley:** Just for clarification, what's the name of the person again in the Ministry of the Environment?

**The Chair:** Sheldon Ens.



**Ms Churley:** Are you working directly with Mr Ens to determine the communications plan? What kind of input is the committee having into this?

**The Chair:** As I mentioned the other day—rightly or wrongly, but in my opinion—there's a lot of interest out there in this committee, but I'd like our activities to become the dinner conversation in a lot of family homes, that kind of interest.

**Ms Churley:** Well—

**The Chair:** I may be exaggerating it a bit, but nevertheless to create a fair amount of interest out there. We have had a couple of demonstrations and we have this interim report. We may have another interim report in February. Also we have four hearings set aside after constituency week. My thinking is, let's try and have some demonstrations on those four days.

**Ms Churley:** I understand that. So committee members who have ideas of demonstration projects we'd like the committee to consider should go through you to Mr Ens? I'm just trying to figure out—

**The Chair:** I think it should go through the clerk.

**Ms Churley:** I think to the clerk specifically?

**The Chair:** Yes.

**Ms Churley:** Because I'm keen to see that we do some energy conservation and efficiency programs. I don't think we even have to travel for that. There are some interesting things going on in the marketplace right now in those areas that just maybe for the record now, to the clerk, I would like to see as part of the demonstration projects that we take a look at.

**The Chair:** Whether it's fuel cell or windmills or whatever, sort of show and tell that will create some interest.

**Ms Churley:** But there are also very interesting technical processes. For instance, there are businesses out there who will go into a home or a small business with wind processors to give you an idea of how much air is escaping from your windows and doors. There's technology—simple technology, but technology—around that. I think we have to get out there and see what kinds of retrofits and those kinds of things are being done to conserve energy. I can talk to the clerk a little further about some ideas for a demonstration project in that area.

**1020**

**The Chair:** OK. Any committee member can feed in as to what some of these demonstrations might be, and we may want to do some more in the spring as well or in the winter when we're meeting. The two we had created a lot of interest with the press. We may not have gotten as much coverage as we'd hoped for. I think we had other interference there, but I think it's something that's very worthwhile working at, and we'll leave that to our clerk and to Mr Ens.

A package on conferences has also been circulated to you, and I wanted to bring to your attention three conferences that are in Ontario coming up in the near future. It's a shame to miss them. On page 3, you will find one in Ottawa, the Canadian Wind Energy Association. On page 5, there's one, Fuel Cell, which is at the Hotel

Sheraton on October 30, and on page 7, November 27 to 28, there's an annual Canadian Independent Power Conference and Trade Show: From Theory to Action. That's pages 3, 5 and 7 that the Canadian ones are on. That's IPPSO.

**Mrs Marie Bountrogianni (Hamilton Mountain):** This is related to a question I asked last week, and we weren't sure of the answer. Many of us have interns who are going to help us with this committee work. I asked the question last time: provided there's enough in the budget, can an intern be sent to a conference to report back, either to a committee member to report back to the committee, or the intern themselves as part of their professional development to report back to the committee? There was some uncertainty last week if that is possible or not.

**Clerk of the Committee:** They wouldn't come under our budget. That's the problem.

**Mrs Bountrogianni:** They wouldn't?

**Clerk of the Committee:** No, not the committee's budget.

**Mrs Bountrogianni:** OK. That's unfortunate.

**The Chair:** It's my understanding from the discussion before that if a plane or a bus was going to be chartered for the committee and there are empty seats, they could ride along.

**Mrs Bountrogianni:** That I understood, and I appreciate that.

**The Chair:** But when it comes to specific expenses, I guess the question would also be, is it in the power of the committee to vote for that or is a budget—

**Clerk of the Committee:** The budget is for members only, and staff that are attached to the committee.

**The Chair:** Sorry, guys.

**Mrs Bountrogianni:** Darn.

**The Chair:** She tried hard, though.

But on a more serious note, I think we need someone to go, whether it's an MPP or staff or somebody from a ministry, and bring back a report for us. This is happening right here.

It's also my understanding there has been quite an extensive study by the federal government on wind energy. That hasn't appeared in our interim report, and I don't remember anybody saying anything about it in our hearings. But my understanding is there's a fair-sized study going on, and maybe we need research to check into that.

Anybody want to go on a long-distance travel to Ottawa for any one of these meetings?

**Mrs Bountrogianni:** It's too short notice for me, Chair, the Ottawa ones.

**The Chair:** That's for next week. There is also the one in November.

**Mrs Bountrogianni:** My life won't be worth living if I miss Halloween with my kids.

**The Chair:** OK. There is of course the fact that we can get conference proceedings; no question. There is one on November 27 to 28—that's IPPSO—if anybody has a particular interest in the Canadian Independent

Power Conference and Trade Show: From Theory to Action. Probably that's a lot of the run-of-the-mill, or run-of-the-river—

**Ms Churley:** Was that Freudian slip?

**The Chair:** OK. So think about it. If anybody decides to go next week, I don't think there's a problem with the committee and travel, but there it is before you.

Is there anything else we should be covering, other than the report?

**Mr Parsons:** I may possibly be interested in the one in Ottawa on the 30th, but I need to see my schedule to know whether I'm available. I don't know whether we need permission or approval of the committee for Ottawa.

**The Chair:** It's more comfortable if there is. We can simply pass a motion. If you are able to go, you'd have clearance. Would you like to put that forward as a motion?

**Mr Parsons:** Yes. I move that the committee approve my travelling to Ottawa for the conference on the 30th. It's not in the motion, but there's about a 50-50 chance I can do it.

**The Chair:** Discussion? Those in favour? Those opposed? The motion carries.

**Ms Churley:** Mr Chair, I'll express an interest in going to the IPPSO conference in Richmond Hill on November 27 and 28, subject to juggling my schedule considerably. I don't know if I can, but I think it's important that somebody go from this committee. I'll report back as to whether I can.

**The Chair:** I was thinking that was Ottawa too.

**Ms Churley:** No, that's actually in Richmond Hill.

**The Chair:** I think we can afford that.

**Interjection:** Could you take the bus?

**Ms Churley:** I could even take the bus to show.

**The Chair:** Electric or hydrogen-powered?

**Ms Churley:** Maybe I'll just ride my bike.

**The Chair:** OK. Can we move on to looking at the report? What are the comments from the committee on the report—good, bad or indifferent?

**Dr Bob Gardner:** If I could quickly update the committee, Jerry's been working hard on the existing report, editing it and clarifying some of the policy questions. What we've also been doing and will do for you is have a separate, stand-alone executive summary at the front. We have been, as you instructed, recasting it as a discussion paper.

What today's discussion was intended to do was make sure you're comfortable with the policy questions that were set up. We didn't want to give you another piece of paper, because you've got so many today. So we'll hear today's discussion, quickly incorporate it in the interim report and get that out to you so you have a more or less final version for next week's discussion. Today is primarily for any comments you have on the direction or content of those policy questions.

**Mr Hastings:** One thing, when I looked over the material from the report—and I'm not sure we've encapsulated it in "Goals and Objectives"—is the whole

issue of energy security for Ontario or Canada. Given what has happened in the last couple of months and the very shaky situation that seems to be shaping up in the Middle East vis-à-vis petroleum—this is more so for the US, but there probably could be an overspill on us as an economy—I'm wondering if we should more clearly stipulate that the alternative fuels proposition, once the feasibility economically of same is researched, could be a very clear policy application for the development of energy security.

Right now, our economy is 95% or 98% petroleum based—gasoline or oil or their additives. There's not much in the way of alternative fuels. I'm wondering if we should have a specific, explicit goal dealing with energy security for Ontario. A critic could say, "Are you trying to insulate Ontario from the rest of the country?" Not at all; it's a global interdependency. It would just highlight this concept, particularly with the backdrop we have throughout the world, with the terrorism and the bioterrorism impacts. It may be very timely.

**1030**

**The Chair:** It's an interesting comment you make on energy security. We would like to include the objectives we discussed last week, and I'm being told by research that your comments could be incorporated into that very easily, unless there are objections from any of the committee members. Your point is very well taken.

**Mr Hastings:** Does that mean we'd have a specific objective, or simply encapsulate it in one of the existing ones?

**The Chair:** Would you like a separate bullet point, or encapsulated?

**Mr Hastings:** I think it's of such significance, given how things seem somewhat out of US control, or everybody's. I think we should look at it. I don't want to be alarmist. The more news I hear, the more I start musing as to how vulnerable we really are in this whole area.

**The Chair:** OK. I don't see any objection to it at all. I think it's an excellent point.

**Mr Ouellette:** Security is one of the big issues on everybody's mind right now, although I think the key focus is to find alternative forms because of the dependency on fossil fuels. I don't think I'd want to see the researchers focus on a lot of security issues, because of the limited amount of time and research we have available—the individuals, the firm, we hire—but focus on where we need to be. Security is definitely an issue, but I think we'll have diverse forms as we open up new markets, so that in the event nuclear has to shut down we can look at wind power and have all the resources necessary to fall in place. Mr Hastings made a good point on security being key, but I think that as we find diverse forms of fuels, security will be less a demand by us. If we have to switch from fossil fuels, we can always go to wind or something else.

**Mrs Bountrogianni:** I'd like to support Mr Ouellette's statement.

**The Chair:** That it should be a consideration but shouldn't be a top priority? That's basically what I'm hearing.



**Mrs Bountrogianni:** I think we should stay focused. We have a large enough task as it is. As Mr Ouellette said, that goal will be accomplished by the fact that we will have alternatives to deal with a potential crisis.

**Ms Churley:** I agree with Mr Hastings that this is an important issue, but I support the contention that for us to get sidetracked on that in this committee, given our limited time frame and the complexities of the issues before us, it might take up too much of our time. But I do want to say he raises a good point.

I now have located the issue I want to discuss about the report. It relates to what Mr Hastings said, and that is energy conservation and efficiency. Pollution Probe said to this committee, and I think we all agreed—I've been pushing from day one, and we had conservation and energy efficiency added to the list of things we're looking at. I don't want to use the word "crisis," but there are real concerns about our energy sources in the near and far future. One of the key things we should and can be doing right now is bringing in energy conservation and efficiency programs. You'll recall the energy crisis of, I think, the 1970s—I don't have my dates right now.

**The Chair:** Yes, 1973-74.

**Ms Churley:** There was a real concentration at that time on conservation and efficiency, and it doesn't rely on bringing in new technologies. I come back to that issue. I think it should be at the forefront of our report. I know the committee didn't necessarily agree with me that we should be making short-term recommendations in this interim report; I believe I lost that battle. But I would like to see that more prominent in the interim report, particularly in the context of the issue Mr Hastings brought up. It's something that has been done in the past and it is, as Pollution Probe and others have said, the best alternative fuel source, something that can be done immediately as opposed to relying on a lot of technical reports and financial instruments, economic instruments and policy changes. It's something that's been done through the government before and through other levels of government and something that I say this committee should be pushing to get started immediately.

**Mr Parsons:** Just following up on Mr Hastings' comments, I agree it should be a minor part. But he did raise in my mind an interesting question that I don't have the answer to: where does our energy come from now? The oil we use in Ontario, where does it come from? How much from western Canada? How much from other countries? What other countries? How much electricity do we sell out of Ontario to other provinces? How much do we buy? How much do we sell to the States? How much do we buy from the States? Where does the coal come from?

**The Chair:** Would you like research to dig that up for you?

**Mr Parsons:** If they have a minute or two.

**The Chair:** Jerry?

**Mr Jerry Richmond:** I can give a general sense.

**The Chair:** Maybe we can hear a general sense and then get a detailed one in print.

**Mr Richmond:** With respect to electricity, my understanding is that Ontario is pretty near self-sufficient. We trade on a daily basis with some American states and with Quebec. I don't know whether any of you went up to the control centre; you'd see there are trades. Basically, in terms of electricity Ontario is self-sufficient, between OPG and the private generators. With respect to petroleum and natural gas, my understanding is that virtually all that comes from western Canada—Alberta and Saskatchewan—primarily via pipeline.

With respect to coal, OPG uses coal in its thermal stations and a significant amount of coal is also used by the steel plants in Sault Ste Marie and Hamilton. With respect to power generation, the coal comes from western Canada and across Lake Erie from Pennsylvania and Ohio. The coal for the steel mills is also imported from outside the province, because Ontario does not have any active coal mines.

That's my general sense. If you want specifics, we can certainly compile the figures.

**Mr Parsons:** I'd appreciate some more exact numbers. My question is, what happens if the US is not able to supply electricity in certain periods? I know we sell; I know we buy. I also understand about oil coming from out west, but it's my understanding that in the eastern part of the province, the Ottawa Valley area—I can remember when I worked in construction that the asphalt cement was different in that area because it was imported crude and had quite different characteristics from the asphalt cement in this area, which was western crude. I think the Ottawa Valley is fed its oil from offshore, and I'm curious as to how much.

**The Chair:** I don't think we need it super-detailed, but a reasonable—

**Mr Parsons:** Ballpark numbers on where our energy comes from.

**The Chair:** Yes.

**Mr John O'Toole (Durham):** Next week, the Ministry of Energy, Science and Technology is before the estimates committee. In the information I've received is much of the grid capacity and the generation capacity and the trading and all those questions. It would be appropriate if we invited that ministry as witnesses. From my conversations with them, they have all those questions. In fact, they'll be part of the estimates process because of the market opening issue. They want to know the grid capacity, the generation capacity. In fact, one of the very interesting things is that during the summer, when we had our highest peak load, Ontario was a net importer from New York. The grids and their structure are also important, what grids we link up with naturally and have the same phased power. Quebec's phasing of power generation is different than in Ontario, yet we're completely harmonious with bordering US states in terms of how the grid works.

They are the ministry that should—I see they're not on the list. Drive Clean is on here—Environment—and we have the IMO group, which ultimately comes under that ministry. I think we should be adding them to the list.

That might give you a chance to—and if you have questions, it's a good opportunity through your representatives on the estimates committee. There are extremely important questions in terms of market opening, which is ultimately the question we're asking: what's the capacity and how is that capacity mixed today, from nuclear to fossil, and what are those assets worth?

1040

**The Chair:** Thank you, Mr O'Toole. You bring up a good point. We do need to look at the delegation list for those four days of hearings in late November, early December.

Maybe I can make a couple of comments. I've inquired of a critic and he's given me some divine guidance on our report, that I might comment here. They've indicated that we are trying to answer too much in our report. We have some 80 policy questions or issues at the end. I know last time we did ask to get major headings there. There's some question on how the committee is going to look once—we're trying to be all things to all people.

Two things came to my mind that might be helpful here. One is to indicate in the executive summary that this is raw data that we've gotten from hearings and we're not even pretending to scope it down, that we just want to keep it all with us. The other one that came to mind would be that maybe we need to take our public policy questions, those instruments, and group them under certain instruments rather than under each alternate fuel. In other words, net metering could be one, and group them all in under there; some of the tax incentives—and there'd be various tax incentives—and how that would apply to transportation, to electricity or to heating. You might use an instrument like education and the different ones under it; going a different route, which might make it a little more interesting in the report as to grouping of instruments. A thought.

The other one was the use of "green," particularly in the preamble, being a bit of a slang term. Should we be a little more specific on the fact that we are talking about alternate fuels/alternate energies, uses and sources?

Another one that's kind of interesting is the size and the amount of information we have under each major heading. As I understand, in writing this, it relates to what we were hearing at the hearings rather than necessarily its importance, and maybe we should point that out. So a few thoughts that came to my attention.

Any suggestions on how you'd like to play with those or take advantage of them?

**Mr Ouellette:** I believe things like that should be included. You're saying about the net metering to ensure that we put that in and include that as one of the things, but I also think that when we have the interim report, we should include leading questions as to—one of the things that I feel I'm gaining a lot of personal support for is the phasing out of MMB and MTBE, the mandatory phasing out of those components and the phasing in of ethanol as an oxidizing component. I think it should be listed in there as well so that—

**The Chair:** As a legislative instrument.

**Mr Ouellette:** Yes. We should be prodding and getting people ready, because all of a sudden the industry is going to react in a very negative way—"We haven't got the supply and the demand"—but it's going to help a lot of the rural communities that are dependent on raising corn and things like that. It will also bring on new industries for Ontario if those components are phased out. Not only do I think they need to be phased out because it is going to help industry, but the key reason is because it's good for the environment. One of the biggest things I found out that was very interesting in the hearings was that a lot of the two-stroke engines, particularly outboard motors, contribute about 25% of their fuel back into the environment. MTBE does not separate; it settles on the bottom. Those people are now contaminating the drinking water at cottages and lakes because that's where they get their drinking water or their processing water from in a lot of those situations.

I think the use of ethanol would be something we should include in that, just as a prodding, to try and get people ready for some of the recommendations, at least one of the ones I've made it clear that I intend to make.

**The Chair:** Maybe the committee might want to come out with, unless they're fuel-injected, outlawing two-stroke engines because of the amount of gasoline that's going out into the environment, or four-stroke. It is a big issue, whether it be leaf blowers or outboard motors.

**Mr Ouellette:** There are alternatives. If there are possibilities of tax incentives for four-stroke, because there are a lot of two-stroke engines out there in boats and outboard motors and so on. It would be very difficult for a lot to be converted over in a short period of time once you outlaw it.

California is currently looking at outlawing them. The way I found that out, believe it or not, was through ice augers. Two-stroke powered ice augers—they're now using battery-operated ones to go ice fishing in California. They are getting ready for that market there because they're looking at that. It is very difficult to hit the chainsaws, which are two-stroke and all the other components, but they are a significant contributor to the problems we have in the environment right now. So making recommendations or giving incentives to lean away from a two-stroke would be something I would support as well.

**The Chair:** Did you have your hand up, or your glasses up?

**Mr Hastings:** I was listening to Ms Churley's comments about energy conservation or efficiency. While I appreciate her emphasis on that—she keeps bringing up this issue of energy conservation as primarily the sole means of reducing emissions, improving the environment and some of the other objectives you have in the interim report—I think we will fail as a committee if we do not keep as the top priority the economic potential of alternative fuels.

Energy conservation, if you look at most of the studies and the literature, in and of itself will not solve those objectives. You've got to look further. It seems to me the



clear emphasis in the interim report and the final report must be on the economic potential, the liberating potential, of those technologies, the one that Mr Ouellette is talking about. If we go down the road of energy conservation nearly exclusively, then we are going to end up having an enhanced regulatory regime on the existing petroleum-based technologies that are out there.

All you've got to do is point to your question that you were asking of the environment people, Mr Gilchrist's question about if we exempt it or change the tax regime on certain fuels. I think it was yours actually, Dr Galt; the question you asked about the emissions under Ontario's transportation sector. Gasoline and diesel off-road use, just in Ontario alone, according to Environment Canada: nearly 23% coming from petroleum-based engines, internal combustion. If you want to put the overwhelming emphasis on energy conservation as your number one priority here as an alternative fuel, then we are going to miss the boat on the economic potential and the potential air quality reductions in emissions from the use of other energy sources, in my estimation.

**The Chair:** Technically, it's not in the mandate, if you read the motion, but I don't disagree with what Ms Churley is trying to accomplish. It is more of a secondary priority or underlying priority. Anyway, I'll let her comment herself.

**Ms Churley:** Thank you for your effort to defend me here, Mr Chair.

**The Chair:** That's a rarity.

**Ms Churley:** I know.

**The Chair:** I'm teasing.

**Ms Churley:** My proposal certainly wasn't, and it never has been, to negate the serious work we're doing on alternative fuels and energy sources. It is of paramount importance that we do that work. But we all know that it's not going to come on stream for awhile. I keep raising this, as do others. Not only do we need to do the research which we are doing on all kinds of different and green energy sources and transportation, but we have to be recommending policy changes. Economic instruments need to be brought in. All of these things need to happen. We are doing some really good work on that and we should continue it, but it's not going to happen for a while.

The final report is not due until—what is it?—May 2002, probably into election mode then. Things are not going to happen for a while, and I'm hoping very much that our final report will lead to whoever is in government doing some serious work and bringing some of these new technologies on stream.

1050

In the meantime, as Mr Hastings himself pointed out, we may have some real problems in the near future with energy sources. It has been proven time and time again. We don't have to do the research; it has all been done before. It is something that we as a committee can recommend we do upfront now, that we start bringing in programs and recommending how some of that might be done, at all levels of government, to deal with the first

step. As you know and as I've pointed out before, Ontario is one of the biggest energy hogs in the world. We waste energy like crazy. We can start—the credibility of this committee, in my view—by saying, "Here's something we can get started on right now." Mr Hastings, that's my point. I certainly didn't mean to imply that we should ignore or put this as a top priority in terms of the things we're researching and demonstrating and recommending that the government move on. I think we have a duty and a role to suggest, let's not reinvent the wheel on this one; it's something we should and can be doing right now. That's all I'm proposing.

**The Chair:** In all fairness to both of you, I think our biggest enemy in trying to deal with this is that we're too enthusiastic and going too broad and we're having difficulties to scope in what's possible. Maybe during the November 7 meeting—the researchers are going out to look at policy—we'll be able to start scoping in a bit at that time. I'm not too uncomfortable with this interim report having a lot of information in it, but at least indicating in the executive summary why, rather than trying to scope it in at this point in time. Energy conservation is great thinking. I'm not sure how far we can go, with the mandate and the direction that's required.

**Mr O'Toole:** These are rather free-ranging conversations we have, which is great.

**The Chair:** Where would you like it to go, Mr O'Toole?

**Mr O'Toole:** Well, in response to the interim report specifically, I have no problems looking at energy conservation as it goes to net metering and all those kinds of issues, which encourages other sustainable forms of generation. That's an argument with respect to conservation.

But I really want to talk about what's missing from the summary, as I see it now. Coal generation is an important issue to deal with, coal-powered generation, fossil-powered. In that respect, it's my understanding that coal-fired generation plants are, in some jurisdictions, being built today. They are using newer technologies and cleaner coals. There's nothing in the report that I've seen. I would like to see something looking at jurisdictions like the United States, and I believe Australia is also moving forward with generation using coal. We shouldn't just presume it's gone. There are cleaner methodologies. We need to not just write it off as dismissive. Maybe you want to respond to that. I'd like to see that; that's one.

The other one is that there is a small section I've seen on the emissions credits, trading credits on the emissions reduction attempts. It's an important part of the equation. Who gets the credits for green power? Under the current emissions trading policy which is on the Environmental Bill of Rights right now—that regulation is coming out; it's posted now, I'm quite sure. That credit is slanted toward OPG. It's allowing them slowly to get credits, where some of the other green forms coming on stream aren't getting the credit for replacing, on the generation side, some of the space. There needs to be a bit more time spent on that.

It's very technical. I don't understand it. I just put to you that I have a question, a formal question I want to put on the record here to be responded to: will OPG be receiving emissions credits for divesting itself of such assets as coal-fired generation stations? Under Bill 35, there is a requirement for them to divest themselves of a monopoly position in generation. I hope we all understand that; that's part of what this is about. Will they get credits for those—which means money; credits are money—to augment the generation charge? It comes in as another form of revenue. They can sell those credits to other people, if you understand how that works. I just want to know if they're going to be receiving credits when they divest themselves of some of those less friendly assets.

**The Chair:** I think Mr Richmond wanted to respond to your comment, and you're also putting that question in for research.

**Mr Richmond:** The only thing I mentioned on some of the issues—for example, on clean coal technology and the additive issue that Mr Ouellette mentioned, all I can say is that my sense of it, from your first round of hearings, is that we did not hear any evidence or testimony on those issues. My suggestion would be that if you have these things you want analyzed, or even, Mr O'Toole, your concerns on emissions trading, a possibility may be, when you're considering your additional witnesses or supplementary hearings, to possibly address some of these issues.

**Mr O'Toole:** That's good. To come up with experts in those areas—I think you're right. I'd like to hear from them. The coal group, whoever they are—I'm not favouring them, but they should be given fair time to make their arguments. Whether we accept them or reject them is yet to be determined.

**Mr Richmond:** There certainly are states and provinces—Alberta, Saskatchewan, some of the Midwest states—where 80% to 90% of their generation is from thermal coal generation.

**Mr O'Toole:** Alberta's base load is coal. If I may, and I appreciate the time to just communicate here—we, it looks like from the schedule, are planning to go to Alberta. Their base load is coal. Most people think, because of all the natural gas—theirs is coal. In fact, they're building more coal generation as we speak. It's a big issue in Alberta, a huge issue. Let's hear from them.

**Mr Ouellette:** I just wanted to follow up on something Mr O'Toole mentioned. One of the difficulties is that there is no incentive for end users to use environmentally friendly alternatives. What that means is that if General Motors, which happens to be in my riding, buys energy from OPG, they go for the lowest price. There is no incentive for them to use environmentally friendly energy. I think what John has asked and what I would like to see, if he didn't, is that we look at the fact that end users may receive some credit on the emissions crediting to ensure that there is some incentive for them to use environmentally friendly fuels. Right now it may cost them more, but the credit system may benefit them in the

end, because right now the only benefactor from it is OPG.

**The Chair:** I think what we're kind of moving into is the kind of discussion we want on November 7 with our researchers and where we want to send them looking for information to be helpful.

**Mr Ouellette:** That's all I wanted to say.

**Mrs Bountrogianni:** Mr Chair, I was thinking along the same lines as you, that the purpose of today was to look at this report. It's due next week, so we can't make unreasonable requests of the research department for next week, but these should be recorded for discussion on November 7, for the final report. I could be wrong, but I envision the final report looking very different from this report. This would almost be an appendix, I would say, to the final report. Right now we're sort of up here and we're going to siphon down and down and down, but we don't want to lose anything.

But I think the purpose of today was to look at this. In a week, the final interim one is due, and we should keep that in mind. I certainly didn't come prepared with all of my questions for the researcher, so I'm not prepared as well as Mr O'Toole and Mr Ouellette for that. I came maybe overly focused on the task at hand, which was to look at the report, add anything more, take anything more. We've got some guidance from the Chair, from your assistant. I think that was taken under advisement by research. I personally don't really have anything else to add to the committee meeting today. I just wanted to refocus us on that.

**1100**

**The Chair:** In summary, I think I'm hearing you say the comments I made earlier—and research to look at—you're comfortable with, to make some of those modifications.

Just thinking ahead, I see the final report as some nice summaries about the priorities that we establish, that we have a little write-up about that. But the major part of it will be recommendations on what we can recommend on, and acknowledging the areas that we have not carried out the complete research on and that need more work to be carried out later on. There's just no way that we can get into, for example, the burning of peat for possible heating or electricity production in the north. That may not be something that—I'm using that as an example; we only had one presentation. I see Mr Ouellette's hand. I know he's concerned about northern Ontario. I was using that as a possible example.

**Mr Ouellette:** I'm scrambling all morning to try to make flight arrangements. That's where I've been. That's what all my staff are trying to do. Anyways, that's neither here nor there in regard to the committee.

I think it's important to have some trial balloons floated in the interim report, because a lot of the media have been calling myself, as I'm sure they're calling everybody else, saying, "What's going to happen with the interim report?" If we have trial balloons saying, "Well, we need to discuss issues such as..." and then list the issues—say, phasing out of MTBE and phasing in of



ethanol—then all of a sudden that industry is going to go, “Oh my God. Look at what they’re looking at.” Then we will see both sides of the issue come forward.

Just float a couple of balloons in the same way with the emissions credit; just a section that says we need to look at issues such as the one Mr O’Toole mentioned. That would be very easy to add to a report so that all of a sudden we are going to get some response, not only from the media, saying, “Explain this emissions credit process that you’re talking about here,” or “Explain what you mean by phasing out of MTBE” and those sorts of things, and anything that anybody else may bring forward. Mr Hastings mentioned the diesel component.

**The Chair:** I think there’s going to be a stepwise fashion here in this report, and I’m hoping the committee will—like, another at interim in February that will be on the policy issues. A lot of what you’re mentioning will come out in those policy issues. I think it’s a stepwise fashion: some will come now and will evolve into some more and more into a final.

**Mr Ouellette:** I still think we should have a couple of those trial balloons that—

**The Chair:** A little warning that it is coming.

**Mr Ouellette:** Yes, “Areas of Future Discussion,” and then list some of the ones we’ve mentioned. Does that sound like something that we are able to get in for—

**Dr Gardner:** At the moment, we have the set of policy questions that you have already. There are a good number of them. I don’t think they are quite what you want. You want to highlight two, three or four issues, and float them as trial balloons. We don’t have anything floating at the moment. The instructions that we have at the moment are that you wanted a fairly broad discussion paper: “Here’s what the committee heard. Here are the questions that we want further input on,” and that’s it. We can certainly include trial balloons when you’ve decided what those balloons are. We haven’t yet heard enough to go away and do that.

**Mr Ouellette:** I would have hoped that we’ve heard a few just this morning that could be included.

**Dr Gardner:** Yes.

**The Chair:** On page 35, the policy issues, bullet point number 3, is a bit of a trial balloon: “To what degree should OPG’s program to install scrubbers at its thermal stations be recognized or further promoted?” In other words, how do we clean up our coal plants? I’d see that as a trial balloon, as one that’s in here.

**Mr Ouellette:** I see about zero response from the press on that one, to be honest.

**The Chair:** Could be. But I’m just pointing out that there are some in here. That was one in particular I picked up on.

**Mrs Bountrogianni:** Could this be solved by using the existing headings—for example, public policy issues headings—asked or framed as a question?

**Mr Ouellette:** Just so long as we float a few of those balloons. It is important, because I know as the end result I will be making a recommendation to phase out MTBE.

I’ll make that very clear right now if I didn’t before. This is going to give some groups an opportunity to respond.

**Mrs Bountrogianni:** You may want to phrase it as a question in your recommendation: should we be investigating as a public policy issue?

**The Chair:** Are you sure some of these are not along the line you’re speaking of?

**Mrs Bountrogianni:** Your issue is not in here.

**Mr Ouellette:** No. The Vice-Chair says my issue is not there.

**The Chair:** We’ll maybe come back to it next week. It would be nice to tidy this up next week.

**Mr Ouellette:** Just areas of future discussion, if that can be mentioned.

**Dr Gardner:** What we can do, in response to the question raised by Mr Ouellette and Mr O’Toole, is draft a couple of potential trial balloons so you’ve got them in front of you, and then you can decide what you want to do. Again, the only caution I have is that it is easy for us to frame the various policy questions that have arisen in the hearings to date and in your own discussions. We would be getting a little ahead of ourselves to be doing too much on trial balloons, because you haven’t really had much discussion on that. We can knock off a few in draft and then you can react to them. So, you’ve heard a note of caution from me on that.

**Mr Ouellette:** From that, I gather we won’t see that in there.

**Dr Gardner:** We can. We can do whatever you want.

**Mr Ouellette:** I’m asking for the committee’s position on it.

**Mr Hastings:** What exactly is the question being posed, Jerry?

**Mr Ouellette:** The phasing out of MTBE and MMB as oxidizing agents.

**Mr Hastings:** What impacts would that have on air emissions and economic development?

**Mr Ouellette:** That would be some of the response we would expect to see. Then, listed as areas of future discussion would be issues such as phasing out MTBE and MMB as an oxidizing agent for fuels, which would then have the methanol and the ethanol people coming forward. The agricultural community, I would expect, would be strongly supportive of it, because then ethanol would have a large demand and corn production would increase. Not only that, but in Mr Cleary’s riding, I believe it is, they’re looking at putting a new ethanol plant in there. But there just isn’t the demand for it right now. So we would see industry coming online to fill that gap that Sunoco, as presented here, is already doing, by utilizing ethanol. We would hear that from them. That would be some of the spinoff we would get. It is a very high carcinogenic, MTBE and MMB. We would find an alternative that’s going to generate industry within Ontario and is going to help the environment as well.

**The Chair:** I think Mr Hardeman had his hand up, then Mr Hastings.

**Mr Ernie Hardeman (Oxford):** Just being a sub on the committee and not having been privy to all the

discussion that arrived at the draft report that's before us, I have a question more to Mr Ouellette than to the Chair. If one were to put that in the report, has the committee heard anything so far that would generate that curiosity? Has anybody come forward and said, "We think that's something that should be done"?"

First of all, I support what you are suggesting would be the end result, but I question whether it would not be more appropriate not to have it in the report but to invite the appropriate witnesses to speak to it for the final report. It is, if not inappropriate, very dangerous to suggest that the committee is looking at that when in fact you have had absolutely no evidence to show that it needs looking at. If we need that evidence and we think we should look at it, then we should invite the appropriate people to come forward and speak to us so we can make a decision on it.

As a citizen looking at the initial report, I would have real concerns when they say they've already decided this is what they want to look at or they want to do, because they think it is going in the right direction, they've met with a number of people, but so far no one has made that suggestion. Where did we get that idea? Why do we have that idea different today than we did before we started preparing for this preliminary report? I would caution putting it in at this time.

1110

**Mr Hastings:** I guess we are engaged in a mind-stretching exercise. The question I'd put to Bob is, from all the questions you've put into the interim public policy discussion, are you satisfied, or do you think we've encapsulated Mr Ouellette's concern? I'd also link it back to Dr Galt's question and the way that, especially Mr Gilchrist—way back when we had the ministry hearings in August, he asked the question, what would be the economic impacts if you removed the fuel tax from diesel? If you look at the Ministry of Finance's response, it's pretty clear that we have significant gaps of knowledge here. We don't have any answers right now as to what their assumptions would be. I find it intriguing that the finance ministry provided us with an answer, which was just basically \$8 million, but I think Mr Gilchrist's question was, if you did certain things, what would happen? Maybe we didn't ask the question probingly enough.

That's what I think Mr Ouellette's trying to get to and that's what we should be seeking out to some extent in these questions. When you remove the sales tax on a certain type of fuel, there's a cost, \$8 million in that instance. What would happen, then, if you did a certain thing for solar or for wind in terms of vehicle transportation, or, for the off-road vehicles, particularly when you look the emissions of NO<sub>x</sub> and VOCs for Ontario, what would happen if you removed or put an incentive in the other way?

What I think Mr Ouellette is trying to get at is, what would be the economic consequences or positive outcomes if you required the removal of these additives by a certain time frame, and what would it cost the

Ontario treasury to do so on the economic side? What would be an enhanced benefit if you did so on the health side? That's the sort of stuff I'm trying to get some answers for, so when we have our final report we can say to that consultant—I don't think Bob can do this—what happens when you take a certain model, if you do a certain thing, and say, "We'll recommend that by 2010 wind energy should be a 2% component of the Ontario economy"? What's the cost to the treasury? What are the benefits on the health side? We don't have that kind of economic modelling, which I hope this consultant can do a little of. I'm trying to link some of these questions.

**The Chair:** Maybe what we need is a section in this interim report of next steps, making some suggestions like this and also letting them know about the policy studies we're doing, and then in May there will be final recommendations, and within those next steps indicate, for example, some of the things that need to be reviewed and looked at, and will be. A lot of what I think you and Mr Ouellette are talking about will be coming out in the policy, and that's sort of our next major step.

I also hear what Mr Ouellette is saying. We need something in this report to grab the public's attention, and a bit of warning.

**Mr Ouellette:** It's designed to get the industry involved as well. You send that trial balloon so that all of a sudden the MTBE producers are saying, "Hey, wait a second. We're going to lose 500 jobs," but on the other side, are those 500 jobs going to be replaced? Those are the sort of trial balloons you send up, saying, what is the economic impact of phasing out the current MTBE and the MMB and the phasing in of perceived environmentally friendly? By simply stating that, all of a sudden these industries then become involved, and on both sides of the issue, and then we can hear those reports.

**Mrs Bountrogianni:** I want to go back to what Mr Hardeman said. Our job today is to look at this interim report. There's a certain procedure that this report was based on, and that was hearings, readings and so forth. In no way is this interim report going to stop us from looking at anything else. Mr Ouellette has this knowledge base and so he's had his own hearing, but we haven't heard it as a committee in order to promote it in the interim report, which is due in a week. We wouldn't be going to conferences if we had all the questions now. We don't have all the questions; we have the questions up to this interim report.

I didn't think of this politically, but Mr Hardeman is correct. I was thinking of it just procedurally, but politically, why would we put something in here that we haven't heard or haven't referenced or haven't sourced more formally as a committee? As a member of the public, I would wonder if we were sneaking things in, although I totally appreciate what Mr Ouellette is saying. I have my own biases as well of what we should look at, but I'm holding off until I get more scientific and financial information on the implications of the ideas that I have privately read about. I wouldn't bring them in this report, because I want to learn more about it. The



conference is formal, the conference proceedings are formal; I'll be bringing them in a report here.

Based on that, I'm assuming this isn't the end, that if we have other questions between now and May, we're not bound only by this. Am I assuming correctly? I just think procedurally, and now, after Mr Hardeman's comments, politically it would be wise to keep on the same procedure. Base this report on what we have heard formally, notwithstanding the wonderful knowledge base that some of us have just because we're engineers and science-based people.

**The Chair:** At this point in time, for all our information, we spoke to some extent about the report from the researchers on policy and then we looked at the recommendations for finalizing it. In this, I have no problem—I think I saw enough nods—that we might put in a little section on next steps that our researchers, writers, might bring back to the next meeting.

**Mr Hastings:** What I think Dr Bountrogianni is talking about I don't have a problem with. The questions in the interim report, the phraseology, what we've been trying to examine—the purpose should be to get people, when they look at this interim report, especially the presenters we had, to think about: "You were championing ethanol fuels, but how far have you looked in probing that? What are the big benefits of it for the economy of Ontario? What are the negatives?" I would hope that the questions would have a purpose and that in the next round of hearings, the people who come, and probably we'll get some responses back from the ones we've had, say, "Here are our best answers, to this point in time, to most of the questions posed, based on what we know." We want to elevate the knowledge base here, not just of ourselves but of the public that reads this.

I think Bob has done a pretty good job in probing and trying to bring out all the questions from the presenters, but we want a round of hearings next time, I would hope, that allow people to come to grips with some of these questions and say, "Yes, we were wrong in our initial expression of doing something. We were championing our cause"—that's fine; I don't have a problem with that—"but on second, third and fifth thoughts, here are the consequences." That's what this should be, that the questions have specific, deliberate purposes, and that's what I think Jerry is trying to pose. Maybe the misnomer of a trial balloon is not right, but he wants to have those things considered and they weren't maybe brought out to his satisfaction in the initial hearings, which is what you'd get because they were championing their particular cause.

**The Chair:** Further discussion? OK. We'll see what our writers can do, possibly some next steps and an executive summary at the beginning. A lot of what I think we're talking about is for down the road, but nevertheless, it's good discussion. What we do need is to grab the reader's attention, particularly in the executive summary.

The only other item is the additional invited witnesses and how we handle the four days of hearings in late

November and December. Our clerk has put before us a grouping of some help: ministries, Ontario government, building industry, umbrella groups, the MUSH sector, then after that it's quite odds and ends. I'm just wondering if this is going to be a tough one to wrestle with as a full committee. Would you like the subcommittee to have a look at this list and report back at the next meeting? Would that be helpful?

**Mr Hastings:** I have a couple of suggestions that we've missed, probably, from the umbrella groups. One of them is the Canadian Bankers Association, Ontario branch. They're not listed. That's probably under investment. Secondly, the Canadian Bar Association, Ontario branch; I believe they have a group dealing with energy law, so I think we should probably signal to them that we'd like to hear from them in terms of some issues, access to capital etc.

**The Chair:** I think the concentration we talked about was this umbrella group and some of the MUSH sector and the ministries. Maybe what we should do is just ask the subcommittee to sit down and try to package these so we can have either 20 minutes or a half hour each for those four days and see if we can get it into some sort of grouping so we have a thought for the day or a theme for the day.

**Mr Hastings:** Probably some of the questions posed by research would elicit groups we may not have thought about, that aren't listed on this next list here.

**The Chair:** I think we do need to zoom, zero in on it so we give adequate warning to the various groups that will be presenting. Is everybody comfortable with just having the subcommittee try to sort this out? I think it's going to be difficult to come up with four or six presenters per day.

**Mrs Bountrogianni:** Mr Chairman, I have a suggestion: if the larger committee has strong feelings about having certain of these groups, to relay it to their representative on the subcommittee.

**The Chair:** Please.

Is there anything we've missed this morning that we should have been covering that I haven't identified at this point in time?

**Mrs Bountrogianni:** No. I think we've covered everything and much more.

**The Chair:** More than I had originally planned.

**Dr Gardner:** Speaking of how much you've covered, what I'd like to propose is that we get the revised interim report, taking into account all the discussion we've had today, to you Monday morning. We had planned, actually, to have it for you before the weekend, then you've got it over the weekend, but you've had lots of great ideas that we want to incorporate in it at this stage. So we'll do that over the weekend, and we can get it to you Monday morning. Now, I know that's a little tight on your schedule to read it, but I think we'd be better to spend that time at this stage; then we'd get you a pretty complete thing to be looking at to wrap up on Wednesday.

**The Chair:** I fully agree with your comment. Some of the problem is to get it to the offices. PAs, being away

from the immediate precinct, sometimes don't get it until Tuesday or Wednesday. Could we make some arrangement whereby it's hand-delivered or there's a spot for them to pick it up?

**Clerk of the Committee:** They're all hand-delivered. When the report comes in, the messengers are called, and they actually walk over.

**The Chair:** OK, so there's no excuse. You'll have it Monday morning in your office. Please look for it. I know some things get in my file and I don't see them for a couple of days, so please look for it Monday morning and we'll go from there. Maybe what I could request is that the subcommittee meet either right after this meeting

or after the next meeting to look at this additional list of invited witnesses. Is there a preference when you'd like to do that?

**Mr Ouellette:** After next week.

**Mrs Bountrogianni:** Then it's Marilyn's job.

**The Chair:** And Jerry won't have to be subbed on at that time. OK, so plan, even if we don't adjourn until 12, that we do spend 10 or 15 minutes looking at what we're going to do for those last four days of hearings in November and December.

Hearing nothing more, I declare the committee adjourned.

*The committee adjourned at 1124.*





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Mrs Marie Bountrogianni (Hamilton Mountain L)

Mr James J. Bradley (St Catharines L)

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## Legislative Assembly of Ontario

Second Session, 37<sup>th</sup> Parliament

## Assemblée législative de l'Ontario

Deuxième session, 37<sup>e</sup> législature

# Official Report of Debates (Hansard)

Wednesday 31 October 2001

# Journal des débats (Hansard)

Mercredi 31 octobre 2001

**Select committee on  
alternative fuel sources**

Committee business

**Comité spécial des sources  
de carburants de remplacement**

Travaux du comité



Chair: Doug Galt  
Clerk: Tonia Grannum

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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Wednesday 31 October 2001

Mercredi 31 octobre 2001

*The committee met at 1005 in room 228.*

## COMMITTEE BUSINESS

**The Chair (Mr Doug Galt):** I'll call the committee to order. Just maybe to update some of the committee members, I know all the committee members realize the interest and excitement this particular committee is creating in the direction we're going on renewable energy. Last night, I was on Voice of the Province and almost all of the calls ended up on the topic of renewable energy. There was a real interest. It was amazingly positive and almost no one went off in the direction of beating up government, which is quite common on call-in programs such as that.

I just thought I would share that with you. We're all realizing, especially from our hearings back in August, the tremendous public interest, but I just thought I would share that with you at the beginning of the meeting.

**Mr James J. Bradley (St Catharines):** The problem was, Mr Chair, I couldn't get through to bash the government.

**The Chair:** I knew you were out there struggling. If I'd realized that, I'd have put in a personal call to you.

We want to go over the executive summary that's been put before us. There are a few other things I just want to touch on before we wind up near the end of the meeting.

We have talked about travel plans as a full committee in January; we'll see where that's at. I want to talk a bit about a communications plan and a coversheet for the report. We do want to get the contract signed. We approved the company last week. You may want to go in camera to discuss that contract prior to giving approval to signing it. We'll be meeting with them next week at this very time. Then, of course, the subcommittee should meet afterwards to look at the four meetings at the end of November and early December as to who we're going to have coming before us. I believe our clerk has a suggested list of provincial organizations that we may want to request to come forward at that time.

Starting back with the executive summary, I've identified a few things, but first let's hear from the committee some of your thoughts. My quick thought when I first saw it was, "Wow, nine pages. Can't they condense it down to less than that?" when in fact from a quarter of the way down page 4 it becomes public policy questions,

grouped as we had requested they be grouped and moved from the end of the report to the end of the executive summary, which personally I don't have any problem with, but possibly committee members might. With those few introductory remarks, I'm open to Mr Gardner.

**Dr Bob Gardner:** Just to give members a quick sense of what we did from your instructions last week, as the Chair said, we created this executive summary. You could use it in several different ways. We did try and write it in a way that you could use it as a stand-alone document, as a communications tool, if you wish, probably combined with the policy questions that you want to pose to the public. That's why it is this inordinate length of nine pages, as the Chair identified. We streamlined the questions and we grouped them. We would also see numbering them. That will be easier as well for the public.

I want to draw your attention to a couple of things actually in the executive summary in response to the discussion here last time. We changed the fifth objective to add on the issue of energy security. We also developed a few examples. What we were trying to say was to follow up the point you made. You want the submitters to be very concrete and to state the consequences of the recommendations they're making. We gave a few examples that ask them to do that. You may want other examples. Obviously we're open to what you want to do, but we wanted something concrete that you could react to.

Then you wanted to float a few trial balloons about emissions trading and a few other things, so we did draft a couple of examples. It's for you to decide if you like those particular balloons or if they're floating high enough or low enough, and we can then revise them to your directions.

What we would see happening next is, we'll obviously be listening to whatever you want to change here today, at best a couple of weeks back for us to do some final editing, pulling everything together, report back to the subcommittee for any kind of final editing and that would be that.

1010

**The Chair:** Discussion, comments? Disagreements, agreements?

**Mr Bradley:** You talk about energy security. I don't know how far this committee would be into this because this committee deals with alternative fuels, as opposed to the regular source of fuels. I have expressed a view in the House a number of times and, in this committee, about

the concern I have with energy security at all—in other words, all the exports that we're now engaged in of non-renewable sources of energy. I know these aren't the alternative fuels as much, they're fossil fuels, but fossil fuels are fuels that we're obviously going to have to use, as well as the alternatives to those.

I notice that both the Premier of Alberta and the Prime Minister of Canada can't wait to sell all that natural gas to the United States. I can certainly understand it from a short-term point of view. If we can be parochial enough and self-centred enough, which this committee probably has to be because we're a committee of the Ontario Legislature, it would be interesting to see if, at the end of our deliberations, we express some kind of concern about how much non-renewable energy is heading south of the border, where there seems to be an insatiable demand. I look at that as energy security.

I read—and someone can correct me on this if they're aware of it; I was quite surprised by it, in the year 2001—that the number one country that the US imports oil from is Canada, still to this day. It's quite shocking to me that that would be the case. I know oil moves in and out. We get oil from other places too; we don't only use our own oil, and it's a matter of where pipelines are and so on. But there we are, the number one source of oil for the United States, and natural gas contracts and, as I say, both the Prime Minister and the Premier of Alberta seem to be anxious to sell that.

From Ontario's point of view, I have expressed the concern: is there going to be enough gas and oil for our purposes in the future, as well as the alternatives that we're looking at? I guess one could make the argument that that should prompt us to look even more carefully at alternative fuels, but I think this committee is wide open to that anyway. But somewhere along the line we may want to look at whether we are satisfied that Canadian oil and gas is for Canada, or whether we are committed, through trade agreements and simply through good salesmanship, to sell that to the United States, perhaps at our own risk in Ontario, which is the largest consumer of fuels.

**The Chair:** As I understand, it's slightly out of our mandate.

**Mr Bradley:** Sure, it is.

**The Chair:** However, as a note in our final report, absolutely.

**Mr Bradley:** Maybe, yes.

**The Chair:** My understanding is that Ontario is still a net importer of fossil fuels.

**Mr Jerry J. Ouellette (Oshawa):** With regard to that, should we not be looking at making recommendations regarding a national fuel policy, then, being that Alberta is the number one oil producer? As the east coast comes on line, it's difficult for us to mandate what takes place there. We have to factor in as well, though, when we're dealing with this that if we have some control of that flow in itself, would it not be advantageous to try and control it, being that 50% of air pollutants that move into our province come from the United States, from the

Chicago and Detroit areas? Should we not try to control some of that so that if we're going to free some up, let's make sure it's going to be beneficial to Ontario in some way, shape or form as well?

**The Chair:** I guess the route for the committee would be through the federal government, to pressure the feds from this committee. That's just the reality of how it moves along. But I think that's just excellent in the report, remembering that this is not exactly our mandate but it's something that—and there's another one I want to talk about in the objectives having to do with energy conservation. But I'd like to wait for a few minutes because I believe it's outside our mandate. I want to discuss that when the other member can contribute.

**Mr John Hastings (Etobicoke North):** I'm curious. I'd like to see legislative research look at Mr Bradley's contention that we're the number one exporter to the US of fossil-based fuels.

**Mr Bradley:** Of oil.

**Mr Hastings:** Oil only, and not natural gas?

**Mr Bradley:** About the US getting most of it, it's not the majority but the largest plurality of its oil from Canada. I was flabbergasted by that statement.

**Mr Hastings:** Are you saying, then, that Canada is a net exporter of oil, more so than the Middle East, particularly Saudi Arabia?

**Mr Bradley:** Apparently we provide more oil to the United States, according to an article I read. I think you're right, John, in wanting to have leg research look at that—

**Mr Hastings:** It would be interesting to see.

**Mr Bradley:** —because it just didn't ring true to me that they still got the largest plurality of their oil from Canada.

**Mr Ernie Parsons (Prince Edward-Hastings):** I read that and was quite surprised also.

**The Chair:** I think these are neat tidbits to have in the final report, not as recommendations but just as observations.

**Mr Hastings:** My contention is that if you use the UN, the New York Times or OPEC sources, the US's major fossil, oil-based fuels would come from the Middle East, particularly Saudi Arabia, and then maybe Canada third or fourth. I'd be interested to see where that lies.

**Mr Bradley:** That's what I would have thought.

**Mr Bert Johnson (Perth-Middlesex):** For clarification, I wanted to know if you're calling natural gas a fossil fuel or not.

**The Chair:** Generally, it's interpreted as a fossil fuel, yes. However, there is some research that was in the Globe back in mid-August questioning whether all oil and gas is necessarily a fossil fuel.

**Mr Johnson:** I meant for clarification of our talking around this, because if I don't consider it a fossil fuel and somebody else does, it could skew the kind of debate we're having on things.

**Mr Bradley:** It's true.

**Mr Johnson:** So in terms of this, if we're calling it that, then I can understand.



**The Chair:** That is an excellent point. We can get in some trouble if we use the terms "green" or "fossil." Probably in the report, we should be more specific, rather than using slang terms.

**Mr Johnson:** Maybe.

**The Chair:** Could I entertain a bit of discussion about the policy objectives being grouped under headings coming in the executive summary versus coming at the end of the full report? How comfortable is the committee with that location and that grouping? I'm referring to the public policy questions. Did I not explain that well?

**Mr Hastings:** Tell me where those are again.

**The Chair:** We have it starting on page 4 in the executive summary. Remember the grand list with no headings at the end of the report? It's been moved from the end of the official report into this, with headings that kind of help you search through and find them. I have no problem with the headings, personally. It seems to flow very nicely. I guess what I'm saying is the location has been changed. It makes, first impression, the executive summary seem rather long, when in fact it's only slightly over three pages.

**Mr Hastings:** Your concern is—

**The Chair:** I'm concerned whether the committee is happy and likes that. I'm just bringing it to your attention.

**Mr Hastings:** I don't have a problem with it, personally. In fact, for an outside user who has two minutes to go through this—

**The Chair:** It makes a complete unit.

**Mr Hastings:** Yes. Maybe there should be a slight statement at the end of the ES that says to look back at the key questions to consider, which is the one back on page 2; some reiteration. Sometimes people go right to the end of a report first and then they go back, so maybe a footnote or something that says, "We're conscious of that so go back to page 3 for the key policy questions."

**The Chair:** And possibly how to respond to the committee.

**Mr Hastings:** Yes, and how you respond to these key items.

**The Chair:** So everybody agrees with the position, and Mr Hastings is suggesting a little paragraph at the end.

May I make a couple of comments under "Miscellaneous," things that I thought might have been considered there and have been discussed. One bullet point would be the technology of gasification that we heard from Norampac, and we are also aware of plasma arc; that's sort of along the same line of destroying organic material.

The other bullet point would be waste energy, with proper scrubbers. It's something that was even brought up for a vote by the committee and I would consider it part of "Miscellaneous." I'm not giving a commitment with that comment—agreeing or disagreeing—just that it should be part of policy discussions. Any thoughts on those two items?

1020

**Mr Bradley:** If I were given a preference, and it's because of a bias I'll state ahead of time, I've never

considered energy from waste to be an alternative fuel. I consider it an excuse to burn garbage instead of dealing with garbage in another way. But that's a personal bias. I admit that at the beginning. What was the other one?

**The Chair:** The technology of gasification under pressure. Norampac's doing that with Dombind. They're in the process of building a plant right now. They're producing hydrogen.

**Mr Bradley:** Again, my personal bias would be against that, but that doesn't mean the committee doesn't wish to have it found somewhere in the report. I don't want to impose my bias on the report, but I want to put it on the record that I'm doubtful about both of those.

**The Chair:** I appreciate the technical point you're coming from. Ms Churley?

**Ms Marilyn Churley (Toronto-Danforth):** I apologize for being late. I just got my flu shot.

**The Chair:** You're looking great. Congratulations. I had mine last Friday.

**Ms Churley:** Thank you. As I came in in the middle of this, can you repeat what it is you're doing.

**The Chair:** We're on the executive summary. We've agreed, by committee, that we would like to have the public policy questions grouped at the end of the executive summary.

**Ms Churley:** OK.

**The Chair:** I was questioning whether the committee would really like it there, just pointing it out to them. Then I was questioning under "Miscellaneous," on page 9 at the very end, should the two points I mentioned—I appreciate what Mr Bradley says, and as chair, I'm not about to get into the debate. I'm just bringing it to your attention. Is this something we have missed, and should it or should it not be there? Of the two points I was making, one would be this gasification, plasma arc that really produces gas or—

**Ms Churley:** And they're not there, and the energy from waste.

**The Chair:** Should they be?

**Ms Churley:** No.

**The Chair:** The other one is waste energy with proper scrubbers. I appreciate what Mr Bradley's saying and I'm very open, just suggesting.

**Ms Churley:** I of course do want to influence, not just a personal bias. I've been on the record before. I don't think these are new green technologies. We've got such a vast array of things to look at while we're trying to scope that I don't think those things should be on there. I would recommend for the purposes of scoping and the fact that's not new technology and has negative environmental impact that we shouldn't include it.

**The Chair:** I'm just bringing it to the attention of the committee. Other comments or questions?

**Mr Parsons:** I guess I have a bit of a professional bias. I think we do need to look at such things as energy from garbage, because if it displaces use of other fuels, then it is an alternative; perhaps wrongly, but professionally I would like it looked at.

**The Chair:** Further questions?

**Mr Hastings:** I think we should be considering all issues. I appreciate Ms Churley's contention about biomass, but I think we should see what it involves, the technologies that may have cleaned it up. The Switzerland experience, the lady who was here in the summer, I think the third day—just as she is a strong proponent of energy efficiency and conservation, one could argue that that shouldn't be there, but in my estimation I think we may want to look at energy conservation and these less clean green approaches in terms of the transitioning of your economy from a fossil-based one to a greener or more renewables energy economy.

You don't just move from fossil to the new approach. I see energy conservation and the less green renewables, or alternative fuels, as transfer bridges, as ways of getting from where we are to where we want to be without major disruptions of the economy. So I think it's incumbent on this committee to look at these situations. I'm not saying energy conservation is not a significant means of going into the 21st century. I think there are a number of megawatts you can save depending on how we approach the issue. It isn't going to be the saviour of growth, but it's certainly a valuable component.

**The Chair:** Other comments?

**Ms Churley:** I know we don't want to spend the morning arguing about this. Everybody knows my position. I've made it very clear. But I want to point out that if you look at what's happening in Europe with burning garbage, it's being phased out. There's a whole new approach being taken on how we deal with garbage. It's on the way out and it just seems foolish for us to be looking at something that's on the way out in Europe for a whole host of reasons.

A new way of looking at dealing with garbage is anaerobic digestion, composting, getting out all the wet garbage. That's the direction we need to be going in. We're far behind many European countries. To put in our report something that's beginning to be seen as old technology in Europe as something we're looking at I think is a foolish thing to do. Given there are so many new and emerging technologies and a new way of looking at garbage, I just don't see any reason for doing it.

**The Chair:** Further discussion? I don't want to drag this out too long. I just put it on the table for you. If anybody wants to make a motion, I'd entertain it; if you don't, we'll move on. OK, we'll move on.

The other one I wanted to bring to your attention going through this is under "Objectives." Under objective number 3, I think it's inconsistent to put "As a result." "Reduce adverse impacts" would make it more readable. Then there is item 4—it's on page 3 in the executive summary and it's also in the full report—"Ensure that energy conservation and efficiency is improved for both traditional and alternative energy and fuels." This is not consistent with the mandate. It's not that I particularly disagree. I agree with the concern and interest, but it's outside of the mandate this committee has been given, so I really have to question whether it should be an objective.

**Ms Churley:** Sorry, what is it again you're looking at? Under policy objectives—

**The Chair:** Item 3, under "Policy Objectives": for readability I would remove "As a result," and then moving on to item 4, I am suggesting it's a great idea but not consistent with the mandate and therefore I see it as difficult to include it as an objective.

**Ms Churley:** Why do you see that as not consistent with our objectives?

**The Chair:** It's not consistent with the mandate.

**Ms Churley:** Or mandate. Why?

**The Chair:** It's energy conservation rather than an alternative fuel to replace fossil fuels.

**Ms Churley:** But remember, when we changed the definition of that, I made a motion to include energy efficiency and conservation as one of the things we're looking at. If I recall correctly, we added that to our list in the mandate.

**The Chair:** My understanding is that we do not have the power in committee to change the mandate, that only the Legislature can change the mandate.

**Ms Churley:** But we already made that decision. If you look in past motions the committee agreed, I think you'll remember, that we would include that. We agreed it would be foolish to not include that as something, especially in terms of—

**The Chair:** I'm just bringing it forward as consistency. There have been some complaints about the committee being too wide when we have a mandate to stay within, so I am bringing it forward, as the Chair, as a concern and it's your decision. I'm just talking about it.

**Ms Churley:** Can we look back?

**The Chair:** Sure.

**Ms Churley:** If we look back, I can guarantee you that motion was made and it was added. If it's not, we're going to have a big problem.

**Mr Hastings:** Mr Chair, I think we should get the notes on our deliberations on that.

1030

**Ms Churley:** Yes.

**Mr Hastings:** What I recall is that there was a motion made. I don't know whether it was voted on. If there's a hang-up about having energy conservation and efficiency hanging out separately as an objective, perhaps the best way to handle it is to reroute it under Ontario's energy reliance upon fossil fuels. I don't want to see it totally diminished here; I think it's an important consideration.

The way I've been looking at this stuff, energy conservation—we could have said, a way back, to those presenters we had from the Collingwood PUC and a couple of other groups regarding energy efficiency, "You can't come and submit your report to us, because demand management is not in itself an alternative fuel. Bye." But I don't think we were going to be that technically narrow.

So maybe we need to have research try to configure it into energy reliance and how it could be a bridge-builder, moving from a fossil fuel economy into a less reliant fossil fuel economy. It's one of the ways of getting there, in my estimation. It may not necessarily be an alternative



fuel, but it's a bridge-builder and we shouldn't just toss it out. But to deal with your concern, see if research could reword the objective more into energy reliance or one of the other objectives there, perhaps under innovative research.

**Mr Bradley:** I realize that if you want to be extremely precise in the mandate of the committee, to a state of rigidity, you would reject it. However, I think energy conservation and energy efficiency in fact should be among our policy objectives, because what it means is that we become less reliant—we look out there at fossil fuels and say they have certainly allowed our society to grow and progress considerably in an economic sense. What we are looking for are some alternatives. I think it should be high in our objectives to want to find ways to conserve energy and to deal with energy efficiency.

Mr Ouellette, Mr O'Toole and I represent automaking areas, for instance, where we have considerable auto parts manufacturing and assembly. One of the things the major automakers have been compelled to do and have now done of their own volition is to make much more energy-efficient vehicles for us. A lot of that was prompted by government. They use their ingenuity to find ways of conserving.

So I think that would have to be a major objective of this committee, as well as looking at the alternative fuels, because you're going to need fuels as well; efficiency and conservation alone will not do. But it is going to be a significant component and I think we've made some significant strides in the world in recent years, particularly if we can focus on Canada and North America, in reducing our consumption, because we've been very consumptive over the years, part of that being our geography and part of it the nature of the beast. So I think I'd like to see that stay under policy objectives, if that's possible with the committee.

**The Chair:** I only bring it forward because of the technicality, not because of the importance. I appreciate that, but I just thought, when there was some concern about the committee getting so broad—you know, a mile wide and an inch deep—rather than looking in depth on certain ones, as a responsible Chair I should bring it forward.

**Ms Churley:** I'm just a little bit surprised that this has come up even as an issue, because you will recall that at every meeting, if you look through the record, I spoke to this issue and have made myself clear time and time again that that, as well as economic instruments and policies, is my main interest, not looking at specific technologies. I think everybody here is aware of that. I've always been working on the assumption, because none of the committee has disagreed with me on that, that it was part of our mandate.

Do you remember there was a long list? I know we had this discussion, I think in one of the early meetings, and people agreed with me. For some reason, it's not reflected in a list. I also made a motion at that time to remove nuclear power and energy from waste, which failed, so that was still in the list. But we were playing

around with that list and I'm convinced somewhere along the line—I thought I made a motion to include that. We can't find a record of it. But we have been going on the assumption in every meeting that that's part of our mandate. I believe that we'll be a laughingstock among some if we don't deal with efficiency and conservation.

**Mr Parsons:** I don't recall the motion, but my concept from day one that made me excited about this committee was that one of our unwritten objectives was to reduce our reliance on fossil fuels. I'd like to think the legacy that we're going to leave for our children, grandchildren and great-grandchildren is some fossil-based fuels. Certainly efficiency and energy conservation have to be in there, because the more efficient we are, the fewer alternative fuels we need.

At the conference I was at in Ottawa yesterday I was intrigued to learn—and I don't think we're a lot different from the US—that the US produces 22% of the world's gross domestic product but utilizes 25% of the world's energy. The European Union produces 20% of the gross domestic product but uses 16% of the world's energy. Clearly, energy efficiency for the European Union has ranked very high. We look rather dismal compared to that. So if we're concerned about maintaining energy supplies, conservation and efficiency have to be part of it.

**The Chair:** It's interesting, the figures you came back with.

**Mr Ouellette:** I think possibly the objective could be read out as, "While the mandate of the committee is dealing with alternative fuels, the committee felt strong enough to have conservation and efficiency reviewed wherever possible," as a way of dealing with both issues. Because I believe, when we hear that 21% of energy costs today deal with heating water, that we have to look at those alternatives. The Collingwood example that Mr Hastings brought forward was an excellent example.

**The Chair:** An interesting facilitator coming through. Other suggestions?

**Ms Churley:** I would just exclude the "as possible" part of the motion. A friendly amendment?

**The Chair:** Sure.

**Mr Ouellette:** Hey, I'm not worried about it. I think it should be there. I think that's required.

**Ms Churley:** I know.

**The Chair:** I kind of like the idea. I'm not objecting to the idea. I was uncomfortable with the mandate and that's why I brought it forward. If we can reword it just slightly, maybe it would then be—

**Ms Churley:** What are they going to do to us if we come back and say we're also looking at efficiency and conservation?

**The Chair:** Is everybody comfortable, basically, with what Mr Ouellette said?

**Ms Churley:** Say that again?

**Mr Ouellette:** "While the mandate of the committee is dealing with alternative fuels, the committee felt strong enough to have conservation and efficiency reviewed whenever possible."

**Ms Churley:** Why don't we leave off "wherever possible" and leave it at "reviewed"? We're saying we think it's an important part of our mandate.

**Mr Ouellette:** That's fine.

**The Chair:** OK. No objections? Great. How about the "as a result" that I suggested in number 3? No one objected to removing "as a result," just "reduce adverse impacts" so it's consistent with "increase," "reduce," "ensure" and "support."

Other discussion?

**Ms Churley:** Can I ask a question? We're looking at this, but we have this interim report, October 31, 2001. Can we comment on that?

**The Chair:** Sure.

**Ms Churley:** I guess what you want to do is do the executive summary first, but we should comment on this.

**The Chair:** Yes, certainly.

**Ms Churley:** Can we do that?

**The Chair:** That was next in line.

**Ms Churley:** OK.

**The Chair:** Is there any other discussion on the executive summary? Otherwise, are we happy, comfortable?

**Mr Hastings:** With the executive summary?

**The Chair:** With the executive summary. Was there discussion?

**Mr Hastings:** On page 5, under "emissions trading and credits policy," I'm wondering if research could encapsulate some way of creating a question or sub-question around, "To what degree should Ontario's energy emission trading policy and regulations seek to promote 'green' energy alternatives?" with a question like, "How does the capping of emissions in other jurisdictions limit the potential of 'green' energy alternatives?" I was specifically interested in cogeneration but I don't think it should be that narrow. So the question would generally be, how does the capping of emission credits in other jurisdictions limit the potential of 'green alternative fuel sources'?

1040

**The Chair:** You're directing your question to—

**Mr Hastings:** To legislative research, if they could. Maybe the wording is too technical and needs to be broadened.

**The Chair:** To work it in as a possible policy question.

**Mr Hastings:** Yes.

**The Chair:** Any objections to that?

**Ms Churley:** I have a question. Can you explain a little further your concern? You said you're concerned about the cogeneration aspect and I'm not getting the connection.

**Mr Hastings:** As I understand it, I think the environment ministry may have a seven-year limit on any emission credits that come out of the development of cogeneration. People have suggested to me, "Why would you limit it to seven years if the construction, the capital investment of that project, goes on for 30 or 40 years? What's so magical about seven years?" Cogeneration, I

know, to you folks doesn't sound like it's green energy. That's why I expand it to where this trading of credits thing is starting in the US. Is there any jurisdiction that has capped emission credits after seven years or five years? How does that hurt the development of green energy alternatives as you want to move to a better air quality?

I have a bias that lays out that using a heavy regulatory approach to air quality—I think we're getting off topic here a bit—doesn't look at the full potential of market-based incentives or technologies. I'm just explaining why I've raised the question, Mr Chairman.

**The Chair:** This may be one of the discussions we should be having in late November, early December, have someone come in on emissions trading or emission credits and discuss it and explain a little more to us just how it works. It might be a good half-hour discussion.

**Mr Hastings:** Easily.

**The Chair:** Further points on the executive summary? We move on, then, to the official report.

**Mr Ouellette:** Just one comment with regard to what you just mentioned, Mr Chair: when we get an update on how the emissions trading works, can we include a business perspective as well? I'm sure we'll get a government perspective of what is intended to happen. However, if we bring business forward, we'll find out how business interprets it in a different fashion.

Mr O'Toole and I have both met on this very subject with General Motors. They have some strong concerns on what it actually means to them as an industry and changing any of their policies and doing various things.

**Mr Parsons:** Still on the emission credits, because I need to get a little better understanding of it: the emissions credit is not an Ontario-alone initiative but is a North American initiative?

**The Chair:** Worldwide.

**Mr Parsons:** A worldwide initiative. I came across a situation that, as it was explained to me, surprised me, which was: if an Ontario plant produces electricity using coal or, let's say, natural gas, it is generating some greenhouse gases. If they then take that electricity and ship it to New York state, displacing a coal-fired plant down there, for example, the coal-fired plant in the US gets the credit for not producing emissions while we in fact are charged for, we get the credit for, producing the emissions even though our electricity is going out of the province. So the American plant that stops producing electricity now has credits to sell to our Ontario plant to allow them the increase.

That was the explanation given to me, and it rather boggled my mind that not only do we have to buy emissions credits, we get the pollution, while the jurisdiction that doesn't use the coal any longer gets the money and the credit.

**The Chair:** I'd have to see that on a chart. I follow the difficulty in understanding how they work, especially when it's cross-border.

**Mr Johnson:** This might have to go on a chart, but I wanted to express, if I could, my feeling on the emission credits. I think we have to be very concerned, not unlike



Mr Parsons, who brings up some interesting detail. I don't think I can support something that says in essence that I can go out and speed and maybe even do a break-and-enter as long as we can average that off with my great-aunt, who sits in the living room of her house all the time and doesn't commit anything. I don't know that that's a good analogy but I do want to—

**The Chair:** It's a nice try.

**Mr Johnson:**—express my reservations about the concept.

**Mr Ouellette:** If I could just add to Mr Parsons's comments the fact that the end user receives no incentive to use green energy as well. So if they use coal-fired, nuclear or wind or any power, they receive zero credit for the energy they purchase, which complicates matters for corporations as well when they're making decisions.

**Mr Parsons:** Yes. There are still a lot of questions for me on emission credits.

**Ms Churley:** Just to add to them, the emissions trading and credit is a really complex area. It can be done in a whole lot of different ways. As you know, the Ministry of the Environment's proposal was sent back to the drawing board a while ago. We are going to have a briefing on this, right? When are we going to do that? Have we set a date?

**The Chair:** We're going to talk about that at the subcommittee immediately following this meeting.

**Ms Churley:** There are ways of doing it where it actually can help clean up the environment and promote green energy, but there are other ways of doing it without the caps where you end up with more net pollution. That's what we want to avoid. A briefing hearing from all sides about the impacts is important before we make any decisions on that. I prefer to keep the wording the way it is until we have that briefing.

**The Chair:** One of the things that happens is that with each trade it's ratcheted down. It's never 100%.

Could we move along or do you want to discuss this? We're really getting a bit off.

**Mr Bradley:** A quick question on that, Mr Chair, and that is from whom we would get the briefing. If it's from the Ministry of the Environment of Ontario or the Ministry of the Environment of Canada, they may have a better spin on what we're proposing in Canada and in Ontario than someone else. There's a suggestion that a business perspective be brought forward as well. That is useful, and it may be that someone else from the environmental field who has a perspective may be worth hearing from. It is complicated. There's no question about it.

Like Bert, I am not a fan of emissions trading. In terms of global warming it probably makes some sense. In terms of smog it makes much less sense, in my view. That's why I would like to have a pretty good briefing on that from people who can tell the layperson what it means in as straightforward terms as possible. Most of us, at least, are lay people in this regard.

**The Chair:** If you have someone you would suggest for the briefing, maybe you could share that with your point person for the subcommittee.

**Mr Bradley:** I think that either John Wellner or Jack Gibbons from the environmental movement in Ontario would have a view that would be useful. I'd also be interested in the government view and I'd be interested in a business view. I don't want us to be endorsing something that business will tell us ultimately is going to be worse for the environment if it happens. So I think those three perspectives would be useful. Jack Gibbons is probably as good an expert as anyone in that regard from the environmental movement point of view. We'd also want to hear from the ministry and, as I say, from business.

1050

**Mr John O'Toole (Durham):** On that, I agree. It did come up during the estimates process of the Ministry of the Environment and they did have a person who was the policy director in that area who gave a pretty good response. My sense from listening, as Mr Ouellette said, to some of the stakeholders is that they believe, whatever the trading system is, that it should be in harmony with our trading partner in the United States. They're looking at a pretty rigorous regime for enforcement and measuring. There are a lot of minutiae and it is really, as has been said here, very hard to actually quantify what the net overall reductions are when you are, as Mr Parsons said, trading with other people and they're getting relief. We have to have it harmonized. That's my view.

The current draft that's on the EBR is not consistent with the American thing and that's a problem. Let's face it, there's a lot of transborder movement. This isn't something that just happens in Ontario. So a briefing from the Ministry of the Environment would be helpful but, as was said before, without duplicating. The manufacturing sector should be heard from.

**The Chair:** It has also been suggested to me that we might get someone up from the EPA in the States. It sounds like this is going to be a full day with two-hour sessions, not just a half-hour session.

**Mr O'Toole:** It's a huge issue.

**The Chair:** Or maybe it's something we should wait for until after Christmas, when we have more time for the committee, rather than trying to cram it in on one of the days before Christmas. I'm not sure.

**Mr O'Toole:** If I could just continue on that, I think there's some necessity for urgency here. I'll tell you why. If we're going to be impacted immediately with what we might want to look at—the draft regulations are already posted. There has been an extension. That extension—it's in November that it's going to close off, which means it will go forward to cabinet or however those things get finally approved. I think after Christmas is too late. The door will be shut, they already will be setting up a regime, and good luck.

**Mr Hastings:** I would echo Mr O'Toole's concerns. I'm not a fan, to quote Mr Bradley, of a total capping regulatory approach, which is where I'm fearful we're headed, without looking at what's happening in other areas. We're going to be out of sync to some extent, and I think we need to get a full briefing from all these areas.

We have to be very cautious about how you describe—and I think, Ernie, you've brought up a very good point. Your ear has to be very attuned to who is giving you an explanation about emissions credits and trading and how that scenario—I don't want to denigrate the person, but without telling me, you have to be listening: who's the identity behind a particular approach? That's why you've got to get your head around—and I haven't myself yet—what this means for the Ontario economy.

If you listen to some people in the manufacturing area, they do want to get their emissions down, they want to move on with being energy-efficient, but certain approaches are saying, "Fine. After you've done your 100% or 200% maximizing of energy efficiency and conservation, you still face this ceiling. It doesn't matter what you do, you might as well say, 'Bye, we'll move to another jurisdiction.'" Complicating this whole thing is that the US is not onside on the Kyoto agreement, whereas we seem to be just sort of floating into it and saying, "Everything's fine." We may learn a very strong lesson here for our future generations. They may have a lessened manufacturing capacity across this country. That's one of my major concerns.

**Mr O'Toole:** If I could, on that whole issue—

**The Chair:** We would like to move on because we're talking about the executive summary and I think we're a little off topic. So could we have Ms Churley and then move on.

**Ms Churley:** I'll be quick. I agree with Mr Bradley that we should ask Jack Gibbons as well. From the environmental point of view, he's done a lot of very technical work on this. We should do the briefing as soon as possible, but I would add that because we don't have the mandate—and again, I tried to get the committee to agree with me that we should be making short-term recommendations but I didn't get support for that. We don't, therefore, have the authority to be making short-term recommendations. So even if we have this briefing—and I think it's important to have it so we have a better understanding at this point—we have no influence as to what the government is going to do or not do on emissions trading.

What I would like to know, however—the deadline has been extended—is if we could find out, if we could ask the clerk to inquire as to possible dates that the ministry is looking at to bring this emissions trading program into law. We don't know at this point, and I'm concerned that we're moving ahead when we do have all these questions and concerns about what kind of model we end up with.

**Mr O'Toole:** Can I submit one name? The person I would like to ask for is Ian Howcroft from the Alliance of Manufacturers and Exporters Canada.

**The Chair:** Thank you.

We have now completed the executive summary and we will move on to the full report.

Just as we kind of change gears, you may see a strange face up here at the clerk's table. Please welcome Don Forestell, who is a clerk assistant from New Brunswick,

just for those of you who might think he's new, sitting up here. It's good to have him with us.

Moving on to the interim report itself, comments? That's a question. Do you want to go through it page by page or do you want to just make reference to a few things? How would you like to handle it?

**Ms Churley:** I have a couple of comments to make on specific items. I don't know if others do.

**The Chair:** Would you like to make your comments?

**Dr Gardner:** If I may, Dr Galt, we found in the past that the most effective thing is for members to make whatever comments they have on specific bits and pieces and we'll take that into account. You probably don't want to go through it page by page. That will take a long time. I think really you're just flagging any concerns or things we've missed or things you would like to add or phrase differently. Then any subsequent changes we can fly by the steering committee and do the final edit with them. It's awfully difficult for a large group like this to do copy-editing, so you can leave that to us.

On the structure of it, the way these two documents will fit together, likely what you will want to do is have the executive summary also as part of the interim report as a whole. So the bits you have just looked at as the executive summary would stand alone for some purposes but they would also be included in the interim report. Your structure would be executive summary, the list of policy questions and then the body of the interim report as it is or however you change it.

**Ms Churley:** I think it's a good report and reflects the work we've been doing. I thank you for it. It's quite good. I just have a couple of minor comments to make.

On page 5, third paragraph down, it says, "Green energy alternatives can also benefit the environment." I would just strengthen that. I think there are a number of reasons this committee was set up, but I believe that was the main one, because of air pollution and the need to find greener alternatives. I haven't thought up the wording but, "Green energy alternatives—the primary purpose is to benefit or to protect the environment." After that, then, there are all these other things. I don't know if people agree with me, but that's my concept of why this committee was set up in the first place.

**The Chair:** Any comments on the comments? What she's basically saying is to just give it more emphasis.

**Ms Churley:** Yes. The way it's written here is that it "can also benefit the environment." It reduces the importance of it.

**The Chair:** "Will" or—

**Ms Churley:** "One of the primary benefits of finding green alternatives is to benefit the environment."

1100

**Mrs Marie Bountrogianni (Hamilton Mountain):** I will support that. We're not looking at alternatives that will worsen the environment. So I'd like to support that.

**Ms Churley:** Perhaps other people want to go ahead while I find my other comments.

**The Chair:** Do others have comments while Ms Churley is looking for her second one? We'll come back to you. We won't lose you.



**Mr Hastings:** The only one I see some concern about would be on page 49, and in the listings as well, the table of contents. We have geo-energy under "Miscellaneous Other Applications," as well as district heating. Geothermal has been getting the short measure of the stick around here. I'm not talking about Iceland but about the heat pumps. I think we need to consider removing "miscellaneous," because it sort of makes people think that geo energy or geothermal in Ontario isn't achievable when you invest in heat pumps and some such varieties.

The district heating project—I know it's based on cogeneration to some extent—is not an alternative fuel per se, but it is a way of being energy efficient in terms of dealing with commercial and industrial buildings, Ms Churley. I knew you'd be interested in that component of energy conservation. I think we need a heightened word or an alternative to "miscellaneous," as it suggests these are afterthoughts.

**Mrs Bountrogianni:** I would agree. There was a shovel in the ground in Ancaster a couple of weeks ago where they will use this type of energy to heat a daycare centre, which is wonderful.

**The Chair:** Other comments? Is that clear enough for research? Other comments on the report itself?

There's one that came to my mind, and that's how dangerous using the term "green" is rather than being more specific. "Green" has different meanings to different people. Is everybody comfortable with the word "green" appearing or should it be "renewable fuels" or "renewable energy" or whatever?

**Dr Gardner:** We heard you on that last time, Dr Galt.

**The Chair:** Is that possible?

**Dr Gardner:** When we look back at the hearings and the Hansard, an awful lot of witnesses used "green." It's true that they use it broadly. We did the editorial trick of putting it in quotation marks much of the time to indicate that this is a matter of debate and some uncertainty, but it is very broadly used, not just by environmentalists but OPG has green programs and green objectives. It's true it's uncertain but it's very broadly understood. To not have it in would, I think, look odder than having it in.

**Mr Bradley:** It's very subjective in the evaluation of it. Some people would define nuclear power as green energy. I wouldn't define it as green energy but others might. I see it as energy. I see it as an alternative to fossil fuels. I wouldn't necessarily define it as green.

The Chair is correct in having some apprehension about the application of the word "green." To again put a bias on the table that I've mentioned before, some people would say energy from waste is green. That would not be my definition of "green." Is it an alternative way of producing power, for instance? Yes, it is. But it isn't, in my definition, green. I really think, Mr Chair, that's where you're seeing some of the rather broad use of the word "green," when in fact it's alternative. There is some—there would probably be a consensus—we would all agree is green.

There would even be some who would say, for instance, that the Hydro-Québec water projects up north

are not entirely green. When they flood the lands, they leach natural mercury into the water and that mercury gets into the fish. They also flood the lands of the native people up there. Quebec likes to talk about that as green and it isn't necessarily as green as others. I don't know whether Mr Gardner has a suggestion for us or a way out of this.

**The Chair:** I think you can carry that to the extreme, and I'm agreeing with you. In wind power there is some visual pollution from those windmills on the horizon. Some people think they're pretty and attractive; others think they are rather ugly. Some complain there might be sound from them. What is purely green is very debatable.

**Dr Gardner:** One thing we could do to respond to your points is add something in the introduction, that we realize there's considerable debate and uncertainty about green, that we're using it in this report the way witnesses have used it in bringing forth their views.

**The Chair:** Sure. I think that's good. That would be very helpful.

**Mr Hastings:** The other way of approaching it possibly is to have Bob—I know it's another question, but under "Public Policy Questions," is the use of the word "green" the way people use it? Do they subscribe to the broad-based definition, such as the one you have in the footnote on page 5 from the Pembina Institute?

The other way is, if you're going to have some language problems or messaging around words, maybe we need to start developing a small index of what words have been used, like the one Bob suggested most of the presenters have used, versus what "renewables" would be. "Renewables" would probably be wind and solar and maybe geo, I don't know, a couple of others, and that would be it. Maybe we need in the final report or somewhere what terms created some problems for people, and you'd have maybe six or eight, "green" being your big one.

**The Chair:** A bit of a glossary.

**Mr Hastings:** A little bit but not one that goes for pages; maybe half a page of different terms. I'm sure "renewables" includes stuff other than the ones you'd think of as renewables.

**The Chair:** Good point.

**Ms Churley:** Another make-work project for you.

**Dr Gardner:** Always at your service.

**Ms Churley:** I finally found the point I wanted to make.

**The Chair:** What page?

**Ms Churley:** On page 2. I was looking too far ahead and that's why I couldn't find it. It says at the top of the page, "Ensure that any broader use of alternative energy is cost-effective and contributes to overall energy security for the province and to economic goals such as job creation and export development," and all of that.

I'm not sure what is meant by "cost-effective" there. Obviously from our hearings we understand that, to bring in alternative methods and green energy, in some cases that's not going to be the biggest priority in getting it on the grid, getting it in use. I want to know your inter-

pretation, why you said "cost-effective," and whether people will agree with me that although we want to be fiscally responsible, we certainly heard from witnesses and we know that that would hinder bringing on an awful lot of green energy if that were a prime concern.

**Dr Gardner:** I think that particular objective has become a bit of a hodgepodge, in which we were trying to collect points that members wanted to make on various economic-related issues. Actually it may be for members to debate exactly how they want to phrase "cost-effective" or how they consider the cost-effective issue to fit in.

**Mr Bradley:** In that regard, my preference would be that the financial implications be known. I suspect some of the things the committee might well be recommending—although I don't want to pre-empt the committee or make predictions about the committee—may not be, at least in the short run, as cost-effective as we would like. It may be that we'll come down on the side of the environment at a financial cost. That whole section—and I understand very well why it's in—"Ensure that any broader use of alternative energy is cost-effective and contributes to overall energy security for the province and to the economic goals such as job creation and export development," I can see putting the kibosh—Hansard always has a hard time with the word "kibosh."

**Ms Churley:** Spell it.

**Mr Bradley:** Don't ask me to spell it, please.

1110

**Mr Johnson:** Is that a "c" or "d"?

**Mr Bradley:** —the kibosh on a lot of recommendations that would come forward. That's the one that would be the blocker on a lot of the suggestions that would come forward.

Nevertheless, I want to know what the financial implications are. If they're bizarre—you may have the best form of energy available, but it's just totally impractical to use it and you want to know that. But I'm looking at that—I'll call it a paragraph, or that point, and I say that could be used as a blocker of a lot of recommendations that would come forward.

**The Chair:** A quick comment. That reminds me of something that came forward last night from one of the callers: the total cost of the change, including health and all the rest of it.

**Mr Bradley:** Yes, good point.

**The Chair:** Are you suggesting a period after "goals"?

**Mr Bradley:** I think that would be better.

**Mrs Bountrogianni:** I agree with my colleagues on this side that that will limit us to our actual mandate, which is to look at alternative sources. It's not to look at the most cost-effective sources, whether that's in the long term or in the short term. But I do agree we have to know what it costs and what the economic implications are. Perhaps a change of the verb: instead of "ensuring," "exploring" or "documenting" what the financial implications are of the uses of alternative energies. We have to know what we're getting into, but this would be a very

lean final report if we're going to look at only cost-effective alternative sources.

**The Chair:** I'm going to let Mr Gardner speak, and then I think I had a hand over here and then back to you, Ms Churley.

**Dr Gardner:** One possible option there for members would be "ensure that any broader policies for alternative energy taken into account," and then you could have these kinds of total costs as opposed to cost-effective perhaps, and these others would then become examples of what you're saying without being—

**Mr Bradley:** Sorry. At the risk of stepping in and interrupting, "take into account" is certainly superior to what we have here.

**Mr Johnson:** The other alternative that Bob has, "to ensure that any broader use of alternative energy studies the cost, as well as the contribution to overall energy security," is an alternative wording that could be looked at.

**The Chair:** Mr Ouellette and then Ms Churley.

**Ms Churley:** The point was raised about the externalities that we don't factor in when we talk about energy costs, the existing traditional costs of energy. We don't factor in the externalities of the health care costs and all those others that we did discuss to some extent here. I just think that trying to look in isolation at new alternatives, the cost to us as a society to bring them on board, separating out the externalities of the existing forms of energy that we have, is a problem. It will look skewed if we don't take the whole thing into account.

I would like to change the wording, if we're going to leave that in there. Instead of "ensure"—what was it you said, Jim?

**The Chair:** Basically what I'm hearing is that—

**Mr Bradley:** The cost implications.

**Ms Churley:** I'm just concerned that—

**The Chair:** It's too rigid?

**Ms Churley:** Yes.

**The Chair:** I think that's what I'm hearing.

**Ms Churley:** Yes. We do need to know some of the implications, especially around—and this is my interest—the policy changes. Perhaps if there are tax incentives, policy changes, all of those things, we need to have the information because it may well be that some—we would all agree as a committee that some of the recommendations from people would just be the least cost-effective and reliable power sources for Ontario, but we can't isolate out the costs from, is it the most beneficial and reliable form of new energy in Ontario? You know what I mean?

**Mr Ouellette:** I'll try to get in a couple of points.

We had a bit of a discussion on costs, and I'll just bring forward what I said when we discussed it before. When you want to use a comparison, it may be more expensive to do that, but when oil was first brought on, or gasoline, for example, the first automobiles ran on alcohol. What was the cost to change over there to establish what we have now? Maybe it was higher; maybe it wasn't. The same with Walter Diesel. When he



brought diesel on board, it ran on vegetable oil; now we're on diesel fuel. So there were whole infrastructures developed. When mechanics were made of the initial ones, being the diesel engine and the automobile, the gas engine, which at that time was the alcohol engine, there was a substantial change and cost involved at that time. Maybe it was higher, maybe it was lower; we don't know. Is that why it changed there, or was there development that we could move to that? When we're looking at these alternatives, maybe it's more costly now, but in the future it may be a lot cheaper, as with fossil fuels now.

The other point I wanted to bring up is that when we talk about green energy, future history will essentially determine the decisions we make today, whether they are green in the future or not, as Mr Bradley said regarding nuclear.

Some things—Mr Parsons talks about the windmills. How do we know that in the future, by harvesting the winds, we are not thereby reducing the winds that contribute to our earth now, which could cause a drought in those microcosms around the Great Lakes because we're utilizing that energy? We don't know that. But that's something we can determine in the future.

I think the use of alternative fuels is far more specific in dealing with the issues as opposed to "green," because what's green today may not be green in the future.

**The Chair:** Can we move along? Maybe we could have staff redraft that one.

**Ms Churley:** OK. I have another.

**The Chair:** You have another one?

**Ms Churley:** Yes.

**Mr Johnson:** You said two.

**Ms Churley:** No, I have more. I actually read the report.

**The Chair:** Wonderful. We appreciate that.

**Ms Churley:** Page 14, the last point on the top of the page, "Can SuperBuild play a role in joint financing of alternate fuel/energy capital projects?" Where did that come from? There are a lot of demands on SuperBuild, and I'm not sure if the researchers can tell us why we have a very specific fund in here when this is long range. I think this is going to be kicking around for a while. I'm not going to get political here, but we all know the SuperBuild fund has a lot of demands on it. A lot of the money hasn't been paid out yet. We're talking about sewer and water upgrades and all kinds of other needs of municipalities. I just don't understand why that specific program is in here.

I'm sure somebody must have brought it up. You couldn't have dreamed it up yourself.

**The Chair:** Discussion?

**Dr Gardner:** Jerry can respond to where it fit in the hearings. Alternatively, if members don't want it in, we can just take it out.

**The Chair:** Discussion?

**Mr Hastings:** I don't see its relevance.

**Dr Gardner:** Out it goes.

**Ms Churley:** Somebody must have suggested it.

**Mr Hastings:** I think you probably included it because you were looking at what would be the organizational scenario for carrying out some of this stuff. That's all.

**The Chair:** I'm sure Ms Churley would appreciate that it's highlighted on my sheet as well.

**Ms Churley:** Aha. And what were you going to say about it?

**The Chair:** It was not consistent with the report. This may be the second time that I'm Chair—

**Ms Churley:** —that we've agreed. Let's have it on the record.

**Interjection:** This is getting too cozy.

**Ms Churley:** Too cozy. That will change.

**The Chair:** Do you have anything else, Ms Churley, to bring to the attention of the committee?

**Ms Churley:** I do, but I can't find it. If anybody else has anything—

**Mr Parsons:** If we can back up to the line that we just deleted to question or comment on it, my understanding—

**The Chair:** Just a sec. Are you on page 14 yet?

**Mr Parsons:** Regarding SuperBuild. My understanding is that we have the one ethanol-producing plant in Ontario. There is a proposal, an attempt, to get one constructed. In some cases, these are farm co-operatives putting it together. I understand that in Cornwall they're having some difficulty getting the funding to construct the plant. It has been in the design stage for quite some time. Here is a group of Ontario citizens attempting to put on line something that would give us an alternative energy, but at this point in time they still do not have the financing.

1120

Maybe SuperBuild isn't it, but do we need somewhere to address whether there are things that can be done to assist an alternative energy start-up? We certainly seem to have a sense that the ethanol has more advantages than disadvantages, and yet we can't increase the production in Ontario without this plant. So maybe SuperBuild does have a role, I'm not sure, but I think the financing of an alternative fuel is going to be difficult for some organizations that start up not an unproven but a new product.

**Mr Johnson:** On a point of clarification: I didn't hear the group that was involved and what they were manufacturing.

**Mr Parsons:** As I understand it, it is a co-operative group of farmers who are constructing a plant to utilize corn to produce ethanol.

**Mr Johnson:** There are already two ethanol plants, and I don't know why they would want another one because they're both quite underutilized right now, as far as I know.

**The Chair:** We're told that it is covered in another section already.

**Ms Churley:** That's what I was going to say; it is covered.

**The Chair:** I think it comes back to what this committee is about in developing policy that may require a

higher percentage of oxygenated fuels, or you put a different tax structure on it, or whatever. We could look at those instruments, and maybe if the demand is there that plant will be built pretty quickly: a guaranteed demand for X number of years down the road. Anything else on the interim report?

**Ms Churley:** I do want to point out—and this is a positive thing, vis-à-vis our discussion about the executive summary—that on pages 22 and 23 there is a very good section on energy conservation and efficiency measures. So that's in the body of the report, and I think we're all pleased to see that there.

**The Chair:** Sure. We've sort of given some direction to research and writers. We'll bring this back at the beginning of the November 7 meeting. I don't want to spend a lot of time. I don't want to get off on a discussion on other things when we have the research company here. But, at the same time, I gather you want it brought back to see what has been written down before we approve it. Mr Gardner?

**Dr Gardner:** A common practice of many other committees is that we make these changes and bring them to the subcommittee and the subcommittee approves it for the committee. These are relatively minor changes that you're asking us to do, and if you're happy with the subcommittee doing it, it will save you some time here in the full committee.

**The Chair:** Maybe we should hear from the clerk. I'm hearing something different.

**Clerk of the Committee (Ms Tonia Grannum):** That has been a practice, but because we have to do the motion to adopt it, it's probably best just to bring it back and then just go over it briefly, just point out the changes, and then we do the motion to adopt, to print, translate and to table all at the same time.

**The Chair:** If we do it that way, can we, some way or other, next Wednesday morning zero in on only the changes, because we've agreed to everything else? Can I get that agreement from the committee, that we zero in and only spend five or 10 minutes?

**Ms Churley:** Unless they find some the problem in the report.

**The Chair:** I think we've agreed to it here. I don't think we'd want to spend—

**Ms Churley:** I agree.

**The Chair:** OK, so we're really not talking that many items. There is one objective that's going to be overhauled, that we're going to take out as a result in one other one, and there are three or four other things that have been left with research.

**Dr Gardner:** That's fine, Dr Galt. We can certainly bring back those changes and we'll highlight them so you see exactly what was done.

**The Chair:** Could all them maybe be put on one page?

**Dr Gardner:** Sure. We'll think of an effective way so that you don't have to waste your time with that.

**The Chair:** OK.

**Dr Gardner:** Can I also ask the committee's permission: we'll want to take another look at this document. There are bound to be little typos or something that we've missed, so we'll make sure that everything's consistent. For example, when we change the objective, we've got to make sure it's changed exactly the same way in two places. We need a little time to do some copy editing and really go through it with a fine tooth comb. We do leave that to the end, until you're happy with it substantively.

For those kinds of little changes, if they can go to the subcommittee, if you're comfortable with that, that'll speed the process up. The one thing though I would ask you to look at is, we have a question for you on page 53, on the Web site. Is there anything that you want to say about what you want to do with the Web site in the—

**The Chair:** It is a Web site, not a "Wet" site.

**Dr Gardner:** Including an excellent typo that our Chair has found. That's a good one, actually, a "Wet" site; second last paragraph, second line, a "Wet" site. We like to have prizes for members who find the most embarrassing typos, so we'll consider the appropriate reward for our Chair here.

You may not want to say anything further. Tonia and I will talk to our colleagues in information systems and we'll come back with a plan for the subcommittee. So you may just want to say that the committee has got a Web site and don't say anything in the italics part, don't answer that question for now. We did just want to bring your attention to it, though.

**Mr Hastings:** Way back in August when we first were discussing our normal expectations of this select committee, I did broach the subject of the Internet quite a bit. I don't want to take too much time on it. I think it should have some of these key policy questions on the site; maybe not the whole report, because that would take a tremendous amount of work on the IT side.

**Dr Gardner:** No, it wouldn't, Mr Hastings. It's easy to convert documents. Once you approve the report, once it's translated, we will put it up on the site and we'll publish the executive summary separately. People will likely read that and print it more, but we'll sort all that out. It's not a technological obstacle at all. If you want to do interactive town halls and some other snappier kinds of things in the new year, we can work up a plan on options and how you might want to do that. You may be best to not comment on that now, just say, "Here's the site," and then we can talk further about how to use it in innovative ways in the new year.

**Mr Hastings:** One final question, then: is there an opportunity here, despite security concerns, for the Legislature to look at bringing in some co-op students who are probably looking for IT opportunities in the development of the Web site? I don't know if the Legislature has ever used co-op students in this context. I'll just leave it with you.

**Dr Gardner:** We'll consider that. Thank you.

**The Chair:** Just a few things that I've asked so you know and we're up to date: the travel plans for the full



committee—January I think was the decision. We just need to check with the clerk. Has any work been done on this as far as pulling it together or research, places that we might go to? Not at this point?

**Ms Grannum:** We've got the updated list of conferences. The subcommittee will have to sit down and decide where they want to go and when.

**The Chair:** I guess what the committee and/or the subcommittee needs is some of that information as to where it should be or should not be.

**Ms Grannum:** It's in the list.

**The Chair:** We may need to get it condensed down.

**Ms Grannum:** Which research did.

**The Chair:** It's one thing to have conferences; the other thing is to have locations such as wind farms, say Ballard in Vancouver, or what's in California. I don't think we would be trying to get the committee travelling to a lot of conferences, but to see sites and what's happening out there.

**Dr Gardner:** We had planned, after we finished the interim report—we heard that you were interested in California, Alberta and BC—to look at the most effective way to get some bang for the buck if you travel there, who are the key people to see, how to organize it. So we'll come back to the subcommittee with proposals.

**The Chair:** That's what we need, and then the communications plan.

**Ms Grannum:** I'm working on that. There was a glitch with the ministry, but they're going to send us some information.

**The Chair:** We'll discuss that later.

I guess the other thing is the contract with Navigant. To discuss the contract, it's my understanding that we should be in closed session prior to it being signed. First, does the committee want to hear some of the details about the contract to prior to it being signed? We did agree to Navigant at the last committee meeting a week ago. I'm at your pleasure.

**Ms Churley:** I think this doesn't have to be in closed session. I did look at the contract, I talked to Tonia, but I understand that this is a routine kind of contract. There's nothing in this contract that—we have all the rights to our research and all the work that we do. OK.

1130

**The Chair:** Is the committee comfortable?

*Interjections.*

**Mr Hastings:** If the subcommittee or the committee is not satisfied, is there an exit clause?

**Clerk of the Committee:** There is, yes.

**Mr Hastings:** Where is it, Tonia? Is it 2.2, 2.3?

**Clerk of the Committee:** Yes, 2.2, 2.3 and 2.4. Not everybody has a copy of it.

**Mr Hastings:** All right.

**The Chair:** I guess we'll go on. If you don't want the details discussed, we can just proceed with the motion. I'll call on Ms Churley to put forward a motion.

**Ms Churley:** Sure. I move that the select committee on alternative fuel sources approve the contract for

Navigant Consulting, as recommended by the subcommittee on committee business.

**The Chair:** Discussion? All those in favour? All those opposed? I declare that motion carried.

Therefore, on November 7 we will meet with Navigant, or at least their representative. I think that will be a very interesting discussion. I think you'll be very pleased with the company we've signed the contract with, not that some of the others weren't excellent, but they just seemed to click with the committee and scored high.

Unless the committee has other items to discuss, we'll go to the subcommittee. Mr Parsons, before we adjourn?

**Mr Parsons:** If I could just share with the committee very briefly, I went to a conference in Ottawa yesterday on hydroelectric production and climate change. I went thinking it would deal with how climate change will affect hydroelectric production. In fact, it was the opposite; it was how hydroelectric production affects the climate. I was not aware until yesterday that greenhouse gases are produced by hydroelectric production in fairly significant quantities. I had thought it was absolutely clean, but it was to deal with the opposite.

The challenge for hydroelectric is reservoirs. Lakes produce greenhouse gases, and reservoirs become super-lakes and produce a considerable amount of greenhouse gases. As the water levels are artificially altered, you will get the water level down, grass growing, shrubs and so forth growing, and then when you flood again, they decompose and emit gases. Where I had thought they were not in this issue—I found the conference fascinating. They were dealing with restricting the greenhouse gases produced by hydroelectric production.

The other thing I would share that I found of interest was that BC Hydro is evidently working aggressively to try to produce a total costing of electric production, costing produced by coal, total cost produced by water etc. Their numbers, when they're completed, should be, I would think, of great interest to our committee.

**The Chair:** It will be very intriguing to see those. The other interesting one is the amount of carbon dioxide that's released in cultivation.

**Mr Parsons:** The other side effect of hydroelectric production is that you increase the area flooded, and forests tend to be CO<sub>2</sub> sinks. So not only are you now producing CO<sub>2</sub>, you've eliminated the CO<sub>2</sub> sink to get rid of it, so you actually double the damage.

**The Chair:** So consequently, the advantage of the run of the river—hydro projects are so ideal by comparison.

**Mr Parsons:** They produce no side effect of greenhouse gases, that's correct.

**Interjection:** That's Beck 3.

**Ms Churley:** Beck 3, a short-term recommendation.

**The Chair:** It's really run of the river. Are there other comments before we adjourn?

**Mr Ouellette:** Yes, I just wanted to know, Mr Parsons, were there any discussions on low-flow hydro generation? Did any of that take place there?

**Mr Parsons:** No, 80% of the attendees were from Hydro-Québec, and the emphasis and focus was on large rather than small or local.

**The Chair:** OK. Anything else?

**Mr Hastings:** I see there's a conference in my own riding in late February that I'd be interested in attending.

**The Chair:** I think we can afford it.

**Mr Hastings:** I would think Mr Ouellette would probably be very interested in that one as well.

**The Chair:** It's hard to say what the committee may be doing at that time, but I think when they're local like that, we should definitely be attending. There is also one in late November that's in Richmond Hill, I believe.

By the way, thanks for attending yesterday and going to Ottawa. You'll give us a small report?

**Mr Parsons:** If you define "small" properly, yes.

**The Chair:** I tend to read one-page reports.

**Mr Parsons:** With no restriction on font size, I think it can work fine.

**The Chair:** Hearing no further comments, the committee stands adjourned, and we'll convene as a subcommittee to sort out sessions that we'll hold in late November and December.

*The committee adjourned at 1136.*











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Mrs Marie Bountrogianni (Hamilton Mountain L)

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## Assemblée législative de l'Ontario

Deuxième session, 37<sup>e</sup> législature

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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

**SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCES**

Wednesday 7 November 2001

**COMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT**

Mercredi 7 novembre 2001

*The committee met at 1005 in room 228.***SUBCOMMITTEE REPORT**

**The Chair (Mr Doug Galt):** I call the meeting of the select committee on alternative fuel sources to order. Our first item on the agenda is the subcommittee report. Would someone like to move and read the subcommittee report?

**Mr Steve Gilchrist (Scarborough East):** I'd be pleased to do that.

Your subcommittee on committee business met on Wednesday, October 31, 2001, and recommends the following:

(1) That the Ministry of the Environment, Environment Canada, Jack Gibbons of the Ontario Clean Air Alliance and the Alliance of Canadian Manufacturers be invited to appear before the committee on Wednesday, November 21, 2001, in room 151 of the main Legislative Building. If room 151 is not available on November 21, then these presenters would be invited to appear on Monday, November 19, 2001, in room 151 of the main Legislative Building. Each presenter would be allotted 15 minutes for their presentation followed by 15 minutes for questions from the committee.

(2) That the Ministry of Municipal Affairs and Housing, Ministry of Training, Colleges and Universities, Management Board of Cabinet, Ministry of Finance property tax branch and the Ministry of Economic Development and Trade be invited to appear before the committee on Wednesday, November 28, 2001, in room 151 of the main Legislative Building. If room 151 is not available on November 28, then the ministries would be invited to appear on Monday, November 26, 2001, in room 151 of the main Legislative Building. Each ministry would be allotted 20 minutes for their presentation, including time for questions from the committee.

(3) That the Association of Municipalities of Ontario (AMO), the Ontario Hospital Association (OHA), the Municipal Electric Association and the Canadian Urban Transit Association be invited to appear before the committee on Wednesday, December 5, 2001, in room 151 of the main Legislative Building. If room 151 is not available on December 5, then the presenters would be invited to appear on Monday, December 3, 2001, in room 151 of the main Legislative Building. Each presenter would be allotted 30 minutes for their presentation, including time for questions from the committee.

(4) That Navigant Consulting Ltd will present their interim report to the full committee on Wednesday, December 12, 2001.

**The Chair:** I'd like to make a couple of comments relating to the report. You'll notice there's some confusion on which room and which day. I have talked to Mr Bradley, Chair of the standing committee on government agencies, and he is willing to give up room 151 on Wednesdays provided the subcommittee of that committee is willing. He is checking them out. I forgot to phone and check with him prior to coming to this meeting. It's in the works. We'll try and get something a little smoother than this to work with prior to the actual date. One of the problems they have is, they don't know who they may call before them until the Friday prior to it. We'll do the best we can to get it to work out.

The other is, on 1, 2 and 3, just so it's a little easier to understand, number 1 for November 21 is really on the topic of emissions trading reductions; topic 2, the theme that day is talking with other ministries and it's really on policy and policy directions; item 3, on December 5, we're talking with the MUSH sector as it relates to policy; and of course on December 12 we're looking at Navigant Consulting coming back with their report at that time. Instead of having four days to meet, we're down to three. The items the committee has suggested over and above these, we're certainly more than willing to meet with those people come February.

Any comments other than that on the subcommittee report? Everybody comfortable? Those in favour? Those opposed? Carried.

**INTERIM REPORTS****NAVIGANT CONSULTING LTD**

**The Chair:** I think what we'll do is change the order of the agenda that's before you and we'll go on now to the briefing by Navigant. We'll do the finalizing of the report, if that's OK by the committee. If there are no objections, we'll do that.

We have with us Mitchell Rothman, Henry Sandels and John Dalton. If we have trouble keeping you straight—you have our names up, but maybe you can help some of the committee members keep straight who's who and mention your names once in a while.

Congratulations on successfully winning the contract. We look forward to working with you. You may want to make some introductory comments to the committee getting started, and then the next hour and a half, hour and three quarters is yours.

1010

**Mr Mitch Rothman:** I'm Mitch Rothman. Next on my left is Henry Sandels and on his left is John Dalton. I'm going to let John talk for a minute while I try to figure out how to get this projector working.

**The Chair:** Those who are in the audience, if you're having some difficulty seeing the screen as it's being presented, I certainly don't mind if you go over to the side or move a chair around, stand up, whatever. I think we're relatively informal with this presentation.

**Mr John Dalton:** Hopefully everyone has copies of the materials that were passed out. I think the purpose today really is to help us, given that we have a limited amount of time available to us and—

**The Chair:** We're still searching for your handout.

**Mr Dalton:** I gave it to Tonia.

*Interjection.*

**The Chair:** Everybody but me?

**Mr Dalton:** It has our logo on the left-most corner and has a Select Committee on Alternative Fuel Sources title on top. Briefing on Scope of Policy Issues—exactly.

What we would like to do today is to have you help us focus our work over the next month. We do have a limited amount of time available. We've quickly been through the interim report, and one conclusion that quickly comes from reviewing all that material—and I'm sure you're probably better aware of this than I after sitting through the various hearings—is that there is a wide range of alternatives in policy initiatives that could be pursued.

What we would like you to help us do is to make sure of the focus that we're proposing today. We've identified a short list of alternatives, and we'd like to get your feedback in terms of whether you think we've missed anything and potentially whether we've included anything that really doesn't have that potential. That's really what we're trying to do today. That gets us to the introduction.

**Mr Rothman:** Thank you, John. The first slide really just reiterates what John just said, that we want to talk about defining alternative fuel sources here and to talk about the objectives, mostly with a view toward limiting at least our research to a defined number of technologies that have the greatest potential for producing some good results in Ontario in terms of alternative fuels. We've already done some screening of that and come up with a short list of technologies that we would like to discuss with you so that we can agree on where we're going to focus our efforts.

As the Chair just said, you're expecting a report from us on December 7. From the hearings you've already had, you know there's a very wide range of alternatives that have been proposed to this committee already. For us

to be effective, we need to be able to focus those alternatives on a manageable number.

When we talk about defining objectives, look first at the committee's mandate as it is stated, and it's there—I'm sure you know it better than I—"investigate, report and recommend ways of supporting the development and application of environmentally friendly, sustainable alternatives to our existing fossil fuel sources." That can translate into some broad objectives which were stated in the committee's own interim report: increasing the use of alternative fuels, reducing reliance on fossil fuels and reducing the environmental effects of fossil fuels. Those may be different things. You can reduce the environmental effects of fossil fuels without reducing their use by either end-of-the-pipe cleanup or by greater efficiency or by switching the kinds of fossil fuels you use; to promote energy conservation and efficiency, to use cost-effective methods of implementing alternative energy use; and finally, to support R&D.

As I said, we need to focus the finite time and resources that Navigant Consulting has. We thought it would help to look for an objective statement that implements those policy initiatives that implement that mandate. We have two kinds of potential objective statements. One is a broader statement, to reduce the environmental effects of fossil fuel use, and the other is to reduce the primary demand in Ontario for fossil fuels.

Primary demand is the demand for the fuel itself. When we talk about primary demand for coal, for example, it's the coal used in electricity generation. There's very little primary demand for coal in Ontario other than for electricity generation. Relatively little coal, for example, is used for home heating. When we talk about primary demand, we're talking about the use of the fuel itself rather than the use of electricity which might be derived from the primary use of the fuel. In talking about primary demand, we're going back to the source of the fuel.

The second statement, the statement of reducing primary demand for fossil fuel use in Ontario, is, we think, preferable because it focuses better on reducing fossil fuel use itself. A statement of reducing the environmental impact, as I said, could mean using, for example, end-of-the-tailpipe cleanup techniques. It could mean simply switching one fossil fuel for another. It could mean using the fossil fuels in different ways or different places without reducing their primary demand.

Looking at, first of all, again the need to narrow the range and to think about what we mean by alternatives to fossil fuels, we think that adopting an objective of reducing the primary demand for fossil fuels makes some sense, at least for our research. Of course the committee will direct us on that as well, but the committee directs its own research and next steps.

**Mr Dalton:** At this point, we'd really like some feedback. Is the committee in agreement? Do we think that's an appropriate focus for our work?

**The Chair:** Comments?

**Mr Gilchrist:** If you're asking as a mechanism to deal with the objectives that are listed in the previous slide as



opposed to something that's supplants the objectives, I couldn't agree with you more that number 2 is the direction you have to go. Clearly, if you're going to inspire a change in fuels, we can't waste our time talking about how we make existing fuels better. That may be part of the short-term solution. While you're not on that particular topic right now, I'm going to suggest that one of the considerations you could give, and the assistance you could give us when you draft your report, are what are the short-term, the medium-term and the long-term potential changes? I absolutely accept that number 1 may be applicable in the short term. There are ways to perhaps force every gasoline company to use 10% ethanol, force diesel fuel to include an additive package that allows ethanol, that in and of itself would eliminate 92% of particulate. That's 92% of the diesel problem solved right there. The longer-term goal, though, I think has to be number 2. To some extent, you might have to build number 1 in as a premise behind your short-term goals, but I really think your emphasis should be on number 2.

**Mr Rothman:** Your examples are really number 2. Your examples are substituting some of the existing fossil fuel in gasoline and diesel, substituting non-fossil fuels for some of the existing fossil fuels.

**Mr Gilchrist:** Touché. You're right.

1020

**Mr Rothman:** Number 1 would be making existing diesel engines burn cleaner rather than removing—

**Mr Gilchrist:** Perhaps I could give you an example at number 1 then. The railroads are using a form of diesel fuel that's 10 times worse than what is used in automotive applications. That's a pure substitution of fossil fuels, but it could be a recommendation that within six months the railroads are forced to switch to cleaner forms of diesel fuel. But again, I am agreeing with your point that number 2 has to be our primary focus.

**Mr Rothman:** Certainly, as you said at the beginning, we see this objective as a way to focus the objectives that were listed in the previous line.

**The Chair:** I think you're doing a neat job with grouping them. It helps the committee work with them. We brought these objectives from the original mandate to put a little flesh around it, and you're taking it one step further by grouping them. I think it's going to be helpful to the committee.

**Ms Marilyn Churley (Toronto-Danforth):** I agree with the comments just made, but in number 1, "To reduce environmental effects of fossil fuel usage," I'm just wondering how the concept of conservation and efficiency—which I'm pleased to see you have—would fit into that. Obviously, it's a huge part of the problem and the issue.

**Mr Rothman:** Sure, and one of the reasons for stating it as, "To reduce primary demand for fossil fuels," rather than something like, "To maximize the use of non-fossil fuels," is to allow for conservation and efficiency, because conservation and efficiency reduce the demand for all fuels and reduce the demand for fossil fuels primarily, because most of the primary demand that fuels the

energy being conserved is fossil. If electricity is being conserved, on the margin, most of the time, it's a fossil fuel in Ontario. If home heating fuel is being conserved, that's in general either electricity, which comes from a primary fossil fuel demand, or natural gas, which itself is a fossil fuel, or oil, which again is a fossil fuel. So the statement, "To reduce primary demand for fossil fuels," was chosen so it would include efficiency and conservation directly.

**Mr John Hastings (Etobicoke North):** If you're trying to encapsulate the committee's struggling approach to too many objectives, what I find disappointing about this is that you're lacking—there's no emphasis, no reference even, to the economic potential of moving from a fossil-based economy to a non-fossil-fuel-based economy. Or am I to imply that it's in there? If you go back to other reports, they've had all this stuff in it. The hydrogen folks' report of 1980 had this stuff in it, and it's sitting over in the legislative library for somebody to do another thesis on. I'm not primarily interested here in seeing that be the outcome.

If that's what we're going to be doing, to put it quite bluntly, I think we're missing the boat. I think we need to have a financial emphasis in there, not only on air quality improvements—clean air—but how you get there financially. When this is given to ministers or to anybody to look at, they're going to say, "Where are the financial implications here?" How do we get from a fossil-fuel-based economy to one 10, 15 years out—hopefully a lot less, but given how I see things going, I think it's probably going to be at least 10 years. How do we get there? What are the best effective fossil fuel additives or biofuels that move you from where we are to where we want to get?

The other thing is, where's the job creation or export potential? If we focus on this the way it is, we'll have a report that shows how we can improve little Ontario, and I don't see how we'll be importing the equipment, as we're already doing in wind energy, for the future; the same with solar. We should be a net exporter of this stuff.

Those are my considerations.

**The Chair:** May I make a suggestion at this point? I think it would be preferable if you made the presentation to us, because as I glance through here, I think there are answers to a lot of the questions that have been put forward. I think you've already learned lesson number one: don't stop and give them a chance to ask questions. If the committee is in agreement, I would like you to go through, and then we'll get into a general discussion, because I think some of the things now being asked will be answered in your presentation. Any objections to that? Thank you very much. You may proceed.

**Mr Rothman:** Thank you, Mr Chair. Mr Hastings, just to respond briefly to you, I think you have a good point in that the statement could well be, "To reduce primary demand for fossil fuels in a cost-effective way" or "in a cost-efficient way." I think that's implicit here, and we didn't put it in explicitly.

OK. Given that, we looked at alternative fuels and technologies for each of the energy-using sectors, look-

ing at electricity generation, transportation fuels, and space heating and cooling. Then we also recognize, as Mr Gilchrist said, that we want to have both short-term and long-term programs, programs that can be effective immediately and programs that will require a longer time to take effect and have a longer-term view to them.

We came up, from a number of sources, both from presentations to this committee and from our own sources, with a very long list of potential alternative fuels and technologies. In some cases, for example, in cogeneration, most cogeneration—not all, but most cogeneration—uses fossil fuels. However, cogeneration uses fossil fuels to accomplish two end uses that previously had been done by two separate fossil fuels. Cogeneration uses fossil fuels both to make electricity and to produce heat for process or space heating use. Cogeneration reduces or can reduce, depending on its efficiency and what it displaces, the total use of fossil fuels, not only by switching from one fossil fuel to another but also by getting essentially greater conversion efficiency out of the fossil fuel being used in the cogeneration. Some cogeneration can use biomass—wood waste and other non-fossil fuels—but most of it would be expected to use a fossil fuel.

So this is a long list—this is only the first page of a long list—that we will be going through, that we have gone through and will discuss later.

This is the second page of a long list. You can see that some of the things on this long list might be included under one or another of the definitions. For example, the use of natural gas and propane as vehicle fuels is effectively switching from one fossil fuel to another. That has desirable environmental impacts in that both natural gas and propane have lower emissions than refined petroleum products, but they are again switching from one fossil fuel to another.

We wanted to look at that long list. We don't have the resources or time to do a good job of what you'll see in terms of assessing both economic and technical potential and looking at potential policies for that long a list of potential alternatives, so we've done a screen on that long list to come up with a shorter list of technologies that we propose to research in more depth. The criteria are as listed here. We've looked first at, "Does it make a difference to environmental impact?" Secondly, "Is there technical potential in the province?" If you've heard about all these barriers analyses and seen all these kinds of things before, you probably have heard the term "technical potential," but let me make it clear. What we mean here by "technical potential" is, how much of this technology could be used if we ignored its cost and simply substituted it for all the available use in the province? That's the definition of "technical potential." It's the available total, ignoring cost, of all potential applications in the province.

1030

"Economic potential" is how much of that technical potential can be realized at costs that are equal to or below those of existing uses. So when we say "economic

potential," it's how much works now? Economic potential has the timeline to it that Mr Gilchrist talked about; that is, a technology that might not be economic now could be expected to become economic in the future, under future cost conditions. So there's a time aspect to economic potential.

The screening criterion of incremental impact is: if we find a technology that can have significant environmental impact, that has technical potential, that is economic, you would expect such a technology to be implemented already; and if it is already being implemented, or if it is in the process of being implemented on a wide scale and additional policies to promote it aren't likely to have a big incremental impact on it, then we're saying, "Let's turn our attention to something else. Let's turn our attention to some other good thing that needs attention, rather than this one that doesn't need attention."

This is just a schematic of how we did that screening, and it really goes through the sequence I just talked about. We look at the technology: what is its environmental performance? What is its cost? And that comes to technical potential. If it's a short-term technology, we wouldn't address the infrastructure requirements; if it's a long-term technology, we would. Then, given all that, we assess its economic potential, and then have a test. Is it economic under that? If it's economic—we didn't put the incremental screen in here—and not being implemented, then there must, by definition, be some barriers. That's how we define barriers. A barrier is something that is impeding the implementation of a technology that has economic potential. It may be a time barrier, or it may be other kinds of barriers. We then would identify the barriers and identify policies to address them. Our report right now is kind of somewhere between the "Assess Technical Potential" and the triangle.

We have done a quick screen of what we think has economic potential. We haven't done the more detailed assessment we might need. Some of the technologies we have put into this screen might wind up failing on the basis of economic potential, but we have done that screen in order to get down to a list we can look at in more detail.

Barriers: as I said, once we identify the technologies, you have to look for the barriers. You have to ask, if this is such a good technology—it has lower environmental impact and it has the same as or lower cost than existing technologies—why isn't it being implemented? There are a wide range of barriers that could prevent its implementation. We've done reports in the past looking at such barriers in particular areas, and we will do that again. We have looked at classified barriers as market institutional barriers or regulatory barriers, and those, especially the institutional barriers and to some extent all three of those barriers, can be addressed by policy initiatives. You have to identify them before you can address them, but that's in the next step.

Our short list—this is the first page of a two-page short list, which isn't quite so short as we perhaps had hoped—is the result of that screening. We took out of



that long list any of the fuels that we thought didn't meet the criteria we had shown you as screening criteria earlier. So you'll see that three of the biomass fuels, the geothermal—the ground source heat pumps—all of the cogeneration, small-scale hydro, two of the solar technologies, some of the biomass vehicle fuels, wind and of course energy efficiency remain on the short list.

Once we agree on the short list—and that's what we're hoping to do today, to ask you, in the end, are there things that you would like struck off the list or things you would like added to it—we would produce a report that essentially follows this template for each of the fuels; that is, we would describe how much it's being used now, what its potential is, efficiency and emissions implications, its reliability. We would identify the barriers and look throughout other jurisdictions for examples of policies that have been used to overcome those barriers and then finally identify and evaluate policies for Ontario for each, again, of these technologies.

Finally, this last slide is a proposed outline for the report we would make on December 7, which would essentially go through, in the introduction and the second bullet, much of what we've already done, much of what we've done and reported to you here—though we would have it written up, not in PowerPoint slides—and then the last three bullets would be the result of our further work.

I think that pretty well concludes what I had to say. John, did you want to add anything to that?

**The Chair:** No other comments? OK. Thank you very much. Just from the Chair's point of view, I think it's kind of neat the way you have grouped it and pulled it together. Some of those thoughts were running through my mind, but you actually have it down on paper and have packaged it for us.

We'll go around the various committee members, get their comments on what you've presented and see if in the next hour or so we can get some agreement.

**Mr Jerry J. Ouellette (Oshawa):** On the list of alternative fuels technology, under "Hydro," I'd like to see low-flow technologies. For example, in British Columbia, small streams are being utilized for hydro generation. We've already received documentation from the Ministry of Natural Resources whereby there are over 200 dams in Ontario that are not used for generation. However, the new, low-flow technology may be able to work very nicely to start generation at those facilities.

As well, under "Geothermal," one problem in one of the mines in Timmins is that the mine is so deep now that they're having problems, because the heat is so high, in keeping it cool enough for workers to work in there. Are there some jurisdictions that use deep mine heat for generation or for heating purposes, or what is taking place in other jurisdictions that could utilize that energy?

1040

**Mr Gilchrist:** In no particular order, except I guess the listing originally presented in your longer list: I'm a little concerned about the dropping of a fairly organized group of biomass items, particularly agricultural waste,

peat/energy crops and then, to a lesser extent, digester gas and landfill gases. I would have thought that was a relatively well known range of potential energy sources that it wouldn't take a lot of time to pull together the available information and apply it to an Ontario perspective. If you want to reduce the number of categories, that's fine. We heard in the first round, and I think it is widely recognized by all sides on the committee here, that Ontario has a number of waste products that we could be utilizing far better. Whether it is woodchips or sawgrass or any number of materials, that should be something we'd consider.

Similarly, the lake water cooling applications: I would think what Toronto has done in Lake Ontario has probably been very well documented, the rationale that went behind council ponying up the money for that very expensive project. I'm curious to know whether the same rationale would apply in Thunder Bay. Lake Superior is even deeper, presumably even colder, closer to shore than what they had to do here in Toronto. Recognizing that we've got a coal plant that currently supplies the needs for Thunder Bay, anything that is an option for that particular part of the province we should seriously consider. I would invite you to put that on your short list.

Similarly, when you get to solar, it may be splitting hairs, but passive solar heating is very closely related to solar water heating. That's passive. You've got a tank sitting on the roof of literally hundreds of thousands of homes in Europe and that's how they heat their water. It may not be a PV array, but it is just as appropriate to consider in the sense that here in Ontario obviously we have seasons where you don't want to have a tank of water sitting on your roof. Certain things will happen to it. Are there any merits in casting a slightly broader net when we talk about solar systems?

The one I'm most concerned about is your exclusion, under vehicle fuels, of methanol, natural gas and hydrogen. I'm less concerned about propane being excluded. But you can allay those concerns by telling me that under the category of fuel cells you will expressly be dealing with the potential to use methanol, natural gas and hydrogen in specific vehicle and stationary applications as part of your synopsis of technologies—exist right now, are applicable here. Was that your intention?

**Mr Rothman:** Sure. Should we just have a dialogue here? I'm happy with that.

**The Chair:** You've got a half-hour, so go ahead and respond.

**Mr Rothman:** We eliminated the digester gas and landfill gas on the grounds of incremental impact. With landfill gas, there are already regulations that new landfills have to have collection facilities for the gas and similarly with digester gas, which is from sewage treatment plants. Those are really already used. My understanding the last time I looked at this was that the sewage treatment process requires heat input and that the gases that come off are already burned and used in that heat input. There's been some talk of potential cogeneration, but my understanding was that almost all of the heat that

can be produced needs to be used in the process itself. We eliminated those on grounds of incremental impact.

Similarly, with lake water cooling, that's already happening in Toronto. If we think about other large cities that are on bodies of water—I suppose you could think of Windsor, but it is on a relatively smaller body. Thunder Bay we frankly hadn't thought about. I would think that the cooling load in Thunder Bay is a great deal lower than it is in Toronto. That kind of district cooling would be part of a district cooling system. The Toronto system is effective because it is part of an existing district heating system and they can extend that. They're not using the same pipes, they're having to put in some separate pipes, but they can extend that district heating idea to the district cooling. That's what you would probably need to do also for lake water cooling. You would need an existing district heating system. In effect, that's kind of included in the district energy idea. If you can do district heating and you can find a source for cooling, what you might wind up with is, if you have a heat source and you want to use it for cooling, something like adsorption chillers which can do cooling. Presumably, if you have lake water around and contribute to the cooling that way, that's where it would work. I think that's part of that whole package. Rather than look at it as a separate piece, it goes into the district cooling.

Solar hot water—I don't know. My memory is that that's one of those programs that has been tried in the past and didn't work very well in Ontario. One way to look at it would be to revisit it. You're right that there are certainly jurisdictions, places where almost every home has a hot water heater on the top. You go to the Caribbean, you go to Israel, you go to some places, as you say, in Europe and almost every house has panels on the top that are solar hot water. We can certainly relook at that, and if there's a consensus of the committee that it wants to put solar hot water back on that list, that's fine.

Methanol, natural gas and hydrogen, of course, are the fuels for fuel cells. Where do we have—

**The Chair:** While you're searching for that, your comment earlier about the response, of course, both to committee as well as to the delegation: comments should go through the Chair, just so we do keep a bit of control here. But I want to keep it informal so that we can get the information to you. If you're worried about taking notes, I just mentioned to the clerk about Hansard. By Friday there should be an Instant Hansard available. It won't be a perfect copy but it is something you could work with, if you want to go back and look at some of the questions or comments, that will be reasonably available for you.

**Mr Rothman:** Thank you.

**The Chair:** Other questions? Will I just keep coming around the room, then? You're still going?

**Mr Gilchrist:** We never got to my most important answer, the fuel cell. Do you intend to deal with the various reformation strategies, getting hydrogen from reformed natural gas, methanol or pure hydrogen, or do you intend to generalize and say, "Fuel cells generically offer the following opportunities. Here are the following

barriers to hydrogen"? My concern about a generic approach is that there is a very big difference in the infrastructure you would have to implement to move one step away from the current fossil fuel use. The decarbonization process that we've been undertaking for the last 200 years does move another significant step, if you took natural gas or methanol right now and used steam reforming to take the hydrogen out of there.

However, the ultimate step is to take off-peak nuclear power and crack Lake Ontario water, and you've got free hydrogen and pure hydrogen and the opportunities to put a spur for GO Transit slightly closer to Lake Ontario. That was studied in the late 1980s. We could have hydrogen-powered locomotives two years from now. The barriers to that infrastructure are very different and very technical. You have to anneal the steel in a pipeline very differently from a natural gas pipeline to keep the hydrogen from escaping through microscopic little cracks in the wells. But I don't want to stop you from looking at that.

I would want to challenge you, though, that it is a very different consideration both in the size and the complexity of the fuel cells that we are talking about in both stationary and vehicle applications, depending on which technology, or both, you want to put into the report. If you want to give it further thought, great, but I would encourage you to not exclude those three fuels, at least to the extent of considering their application in fuel cells.

**The Chair:** Could we have a response? Then we need to move on to the other caucuses.

1050

**Mr Rothman:** When we talked about fuel cells, we talked about fuel cells with on-board reforming, rather than cracking water or stripping hydrogen in a central location and providing a hydrogen delivery infrastructure of some kind. But I notice that fuel cells are not on our short list, and I'm trying to remember, John and Henry, is that inadvertence, or what were the reasons that we took them off?

**Mr Dalton:** I think the reason we took them off is incremental environmental impact. I'll let Mitch talk to that, but one thought and concern I have is that I think we as Navigant Consulting, based on the time that we have, don't want to be picking specific technologies. So when you start talking in terms of fuel cells and the various technical alternatives, our thought is that we want to be looking in terms of fuel cells as an opportunity, what appears to be the most viable technology for fuel cells—is it one that is likely to be adopted by the market?—and then what are those barriers, as opposed to going through the full range of alternative technologies and offering an opinion in terms of which one might have the greatest market take-up 10 years down the road.

**Mr Gilchrist:** Chair, I—

**The Chair:** Sorry. We're going to have to move on.

**Mr Gilchrist:** No, no, no. We can't take an entire category out without further response.

**The Chair:** Sorry, but I do have to move on.

**Mr Gilchrist:** Then I hope it's your intention to come around.



**The Chair:** You haven't left any time for the other two in your caucus. I've just been reminded we should keep within each caucus having a fair amount of time. So we're going to move on to the Liberals and the NDP, and if there's any time left we'll come back to your other two caucus mates.

Liberal caucus: any comments that you would like to make at this time?

**Mrs Marie Bountrogianni (Hamilton Mountain):** Thank you for that clarification.

First of all, welcome. My apologies for being late. I was at another meeting. I'd like to welcome my son, Alexander Tsanis, who is here with Take Our Kids to Work Day. He's back there sleeping. It is interesting at times, too, Alexander.

*Interjection.*

**Mrs Bountrogianni:** I know he is.

Thank you for this. I too am looking forward to your answer to Mr Gilchrist as to why that category was taken off, because that is something I was going to pursue in one of my visits overseas. But I look forward to your answer to that. This is excellent in that it provides for me an infrastructure for the questions I'm going to ask at the two conferences and at my meetings. So this provides me an excellent framework. But I am interested, when Mr Gilchrist's turn comes again, to find out why that category was completely taken out, because in my research in preparation for my trip, I didn't see it as being as big a concern as we might see it over here. So I'm looking forward to that discussion. That's my comment.

**The Chair:** Would you like to respond to Dr Bountrogianni?

**Mr Rothman:** I think we did look at fuel cells and we did take it out on the basis—really two bases. One is that most of the fuel cell technologies really are fuel switching. They reduce environmental impact, but you're still using fossil fuels until you get to the point that Mr Gilchrist talked about, which is pretty far down the road, of having a hydrogen technology where you could use something like cheap nuclear power or something to split hydrogen off and then have a hydrogen delivery system. That's quite a long-term initiative, a long-term problem. We really didn't feel that we had the resources at this point to look at that.

So the fuel cells, both stationary and mobile, we eliminated from our research on essentially two grounds. One is that they are fuel switching, that there isn't necessarily a large impact in terms of reducing the primary demand for fossil fuels. The other is that there is so much interest and so much commercial development of fuel cells already happening that we wondered whether there would be viable policies that Ontario could pursue that would make a significant difference in the pace of development of fuel cells.

Again, Mr Chair, we would await the committee's direction on that, if it had some further direction.

**Mrs Bountrogianni:** The conference I'm going to deals more with implementation and economics rather than the science in Europe and how successful or un-

successful they were. Perhaps I could be of some assistance when that final report of the proceedings is out.

**The Chair:** Absolutely.

**Ms Churley:** Thank you for the presentation. I wanted to come back to and have a discussion about the comments you made about the technical potential and the economic potential. You talked about those that can be realized at an equal cost or lower than existing cost, the time aspect to the economic potential and those kinds of things.

I just wanted to discuss the complexities of that, because when you're talking about—and I know you have a limited time frame and there's only so much you can do on the economics. But it's an important point because when we look at traditional energy that we use now—for instance, you just referred to possible cheap nuclear power down the road. Of course, there's never any such thing, because when you look at the externalities of all of the existing kinds of fossil fuels and nuclear that we use, ie, nuclear power and having to get rid of all of that radioactive waste and the billions involved in that, coal-fired, fossil-fuel-burning, the externalities, the health costs that we don't factor in, that's the historic climate in which we're operating as we try to bring on these new technologies. We talk about these costs that have been kept artificially low because those externalities aren't brought into the equation.

Having set the table with that comment, I wanted to ask you then to perhaps give us some examples, if there's a good technology, of how you would determine—because I don't agree that we're going to be able to bring certain good technologies within this existing climate at the same costs or lower than costs that already exist without looking at the kind of economic instruments and policies and sometimes having to accept for a short term anyway that to get those on stream for the sake of environmental protection, we may have to pay more.

I'll end my comment by saying that we've discussed—I don't know about this committee, but I believe in the early days that the world is turned upside down, that because of those externalities that we don't take into account, we're asking green power to come on stream and it costs them more, whereas the polluting power we already use actually costs us less than that. There's a real imbalance, and that's a major, huge policy issue—an economic issue I understand, but I think it's an important question when we look at trying to balance what you call the technical potential and the economic potential.

**Mr Rothman:** What you're saying in effect is that market cost or out-of-pocket cost of a given technology is not its full economic cost, that in addition to the out-of-pocket costs there are environmental damage costs.

**Ms Churley:** And health care costs.

1100

**Mr Rothman:** Environmental damage costs are part of the health care costs. The environmental damage costs are very real. They include health damage costs, they include damage to buildings, they include damage to crops. There are lots of environmental damage costs.

There's an extensive literature and an extensive body of research into quantifying and monetizing those environmental damage costs.

Some years ago—I think it was in 1998—I did a study when I was with another company for the federal government, essentially evaluating what the full environmental costs are of electricity in order for the government to have some idea of what premium it might want to pay to buy renewable resources for its own facilities. As you know, the federal government now has a program where it has become a customer for renewable energy at premium prices in a number of provinces. So we're certainly aware that when we say "economic potential," that can be defined in one of two ways: it can be defined as straight out-of-pocket market costs, or it can be defined as total social cost of both the fossil fuel and its alternatives.

Quantifying those is a difficult process. When we look at, for example, something like wind generation, most of the wind technologies now are more expensive on an incremental cost basis than most of the fossil fuel technologies. That's one of the uses where both thinking about total social cost of the alternatives and thinking about where costs are likely to go in the future can be very useful in saying, "Here is something that has economic potential now, perhaps, on a full cost basis, on a total social cost basis. It may have economic potential on a market basis in the future as the cost of wind generation decreases and the costs of conventional generation increase. So here's something where the barriers are simply getting the cost down, getting the technology implemented, and maybe we can find some policies for that."

So I agree with you: we need to be aware of those. I'm not going to promise that we will be able to make full environmental cost assessments for each of the technologies we're talking about.

**Ms Churley:** Actually, in this short time frame, I know that is a very complex area and don't expect that, but I just wanted to understand where you were coming from on it. That's very helpful. I'd like to see that study, actually. I would be very interested in the one you did for the federal government.

**Mr Rothman:** As I say, it was a while ago, but it was at one time on the EnerCan Web site. I will check to find its availability.

**Ms Churley:** If I could have one very quick follow-up, when you talk about evaluation using barriers analysis vis-à-vis this discussion, can you give—well, I guess the wind power one was a perfect example of that. In my view, from what I understand about that, it's not possible that you're going to come back to us and say that any of these alternative fuel sources can be brought on stream right now at cost or below the existing cost; you would have to come back with certain policy changes. Whether they be tax incentives, tax changes, I don't know, but as you know, a variety of other jurisdictions are doing these kinds of things. I would assume you would see some of these as barriers that we would

have to make policy changes around, which in most cases do cost money, one way or the other. Would you agree with that, that this doesn't come easy or for free?

**Mr Rothman:** In general that's true. I would suspect that there are some energy efficiency policies which would be cost-effective right now at current market costs for both the energy efficiency and the alternative fossil fuels. Barriers to that tend to be institutional barriers—sometimes regulatory barriers, but they tend to be institutional barriers. It's an incremental capital cost to put in something that's more energy efficient. The person who makes that incremental capital cost decision is not the same as the person who will be paying the operating costs, so to keep the capital costs down they put in a less efficient technology than perhaps the person who is going to pay the operating costs might want. There's a market imperfection there, where perhaps the capitalized cost of the asset doesn't properly take into account the capitalized lower cost of energy going forward. We would look for policies that might get around such barriers. There are several. One obvious set of policies that's in place already is the standard policy of energy efficiency standards that really eliminates that barrier.

**The Chair:** Just so the committee knows where it's at, I should have started out giving each of the parties equalized time in working around. We've 18 minutes from the PCs, four from the Liberals and nine for NDP. What I would like to do, with the committee's permission, is to see if Mr Parsons has anything, then go to the two Conservatives who haven't spoken and then, for the time remaining, come back to the Liberal and NDP for the time that hasn't been used.

**Ms Churley:** Can I ask a point of information? I'm sorry. It is for the benefit of the committee. In terms of timing, we also want to get to the finalizing of the report.

**The Chair:** I'm aiming for 11:30; I should have mentioned that. Then, I see we have here about four decision points that we should say yea or nay to.

**Mr Ernie Parsons (Prince Edward-Hastings):** I don't have a lot to say, but going back to a topic that was raised earlier on your objective statement, I thought the second one you suggested was a wonderful way of capturing what our object was, and I certainly support it. When we get to your short list, I'm intrigued by what's not there. I apologize for being out of the room for a few minutes.

Certainly some jump out at me. I was fascinated by the presentation on agricultural waste for production of heat in I think it is was the Windsor-Leamington area for the greenhouses, very intrigued by that. We have a small farm and I went back home and I've undertaken an experiment there, which has renewed or increased my interest in it. It isn't appropriate to say, "Would you add that to the list today?" But you obviously went through a very detailed analysis on each alternative fuel, and I suspect gave it points and graded it and decided what was viable and what wasn't. Is it possible for us to have access to the chain that you went through to decide whether to shortlist or not shortlist it?



**Mr Rothman:** Remember that we've had a week with this, and look at the length of the list of technologies. We didn't go through anything like as elaborate a process as you suggest. We did go through our checklist with each of these technologies. We could, I think, provide a list for each of the technologies that is on a long list and isn't on the short list. We could say on which of the criteria we eliminated them, which was a much less formal analysis. That's one of the reasons we are coming back here. If the committee wants us to do a formal analysis for additional technologies, we can do that.

**Mr Parsons:** I would. I have done a fair amount of reading and research in the last three to four weeks, and I am very interested in agricultural waste for biomass.

**Mr John O'Toole (Durham):** I'd just start with an observation on the committee's objectives. I want to commend you. I think the report really crystallizes a lot of the time we've wasted—not wasted—to get to this point. One would be the statement that says, "Ensure that use of alternative energy is cost effective"—you've defined that in material terms, economic terms and environmental terms—"and contributes to energy security and economic goals...." That is a pretty tight phrase that, I feel, is the bolts of it all.

I just want to go through the process schematic. I want to concentrate on the economic argument a little bit. You spoke with Ms Churley there, and you said that cost is really the market and the social implications. That's the cost: the social, health, environment and the rest of it, and the actual market distribution infrastructure and other things and market pickup for capitalizing it. We've had considerable discussion on what is the cost. Even here—even when the estimates process with the Ministry of Energy over the last couple of weeks—what it is costing.

1110

We've got a \$38-billion debt at Ontario Hydro. It has been subsidized. Nuclear isn't four cents a kilowatt; it's probably 10 when you look at how you deal with the waste 45 years from now. It's not even in there—it's zero. And it is billions. Look at what they've had to do to resolve Wesleyville. The Canadian government has been looking at that for years. They've spent millions just doing siting.

I want a cost in this model. What were those elements? We've argued that the full cost of power is what the consumer is ignorant of totally. It isn't four cents for nuclear. Then they can use that dismissively and say, "Wind is nine, so you can't afford it. There will be no investment. Blah, blah, blah." If you charged them what the real cost was, the social and market cost, you'd have a different argument here today, and your schematic would result in some different kinds of outcomes. I only make that point because cost is one of the most important policy questions we have. It's subsidized—\$38 billion of subsidy to Ontario Hydro over a period of years.

I really want you to feel that I'm very concerned about the fundamental of cost in your schematic. If it is considering traditional costs, direct and indirect, I'm not sure we are looking deep enough in the cost to just

continue doing what we are doing: the whole argument about stranded assets, protecting OPG, making sure we don't write off coal plants—huge issues—eight million in fossil generation. We're not going to write that off. But if the marketplace was allowed to play the real game of saying, "Consumer, clean power saves you money in health, in environment and quality of life. It's nine cents. Nuclear costs you 14 cents, because eventually you have to get rid of all the junk"—I've made my point there.

Two points on your short list: I agree totally with Mr Gilchrist in terms of the reforming process and the advances in technology in the future using—I forget what you call them, but they're actually little physical units. I've just received a report from General Motors. They've now made a product commitment within 10 years to bring fuel cell—they're going to be in trucks in two years. I think they call them onboard racks, which do the re-forming of gas. There's 80% efficiency in it. I don't believe—I don't know any of your knowledge or background—we're able to appreciate the absolutely immense changes in the technology in the short term. We are going to be looking at it through today's lens and dismiss some things that are going to catastrophically change the nature of the gasoline-powered vehicle.

I worked there for 30 years. General Motors has just bought 24% of Hydrogenics, I think. They're committed to having market products. This gets away with the infrastructure question of having to have a distribution system for whatever new power or how you charge up the cars or whatever. It's just reforming gas for hydrogen. I really feel we need to have on vehicle fuels what Steve was saying earlier. I don't think we can avoid it.

The last point, Mr Chair, with your patience and kind indulgence—

**The Chair:** It's running out.

**Mr O'Toole:** —is the ITER project. It may sound far-fetched, but the international thermonuclear experimental reactor—that's going to be Canada's bid. The Ontario government is investing \$300 million in that project as we speak. It's more building scientific infrastructure than creating energy. But I'd like some time in the report on ITER, even if it's one paragraph. We've made a considerable commitment. It's a \$12-billion project. The opening meeting is tomorrow night in Toronto, where the Canadian delegation is negotiating with France and Japan. It is my understanding that the United States is back in the equation.

**The Chair:** Response? Who would like to start?

**Mr Rothman:** To take the first point, it is a question of how we define cost. We are not going to be able to assess the full social cost of existing uses that's within the scope of the work we have here. But when we talk about assessing economic potential, one of the things we certainly are aware of is that there is a potential under-accounting for social costs in existing fossil fuels. This is not to say there are no social costs for alternative fuels, because there certainly are. We will look at those and essentially have to make some qualitative decisions about

where those trade off at the time we start to look at economic potential.

On fuel cells, if it is the committee's wish, we can put mobile fuel cells back on this list. It remains, for me, in thinking forward about what kinds of effective policies Ontario can adopt that will significantly affect the speed of adoption of fuel cells either in Ontario or in the broader context—that's problematic given the speed, as you both just said, of adoption of fuel cells without any policy impetus from Ontario. We are at the committee's disposal on that, Mr Chair. Should the committee want us to look at that, of course we could think of policies that might have an incremental impact on the adoption of fuel cell technologies in Ontario. We could certainly look at that question.

Finally, I have to admit that I'm not familiar with the third program Mr O'Toole was talking about.

**Mr O'Toole:** The international thermonuclear experimental reactor, an international consortium with fusion energy. It is more of a scientific—there's one in England today. Oxford, England, has one, and Cambridge. I think there's one in Massachusetts. But it is experimental. It will not produce any grid power of any sort, but it is seen to be the sustainable friendly energy of the future. At least that's what they say in the marketing. There's plenty of stuff that I've submitted to the committee on it. There's a Web site.

**The Chair:** It's really a research project.

**Mr O'Toole:** Yes, but it has a real future. I'd just like it acknowledged in the report, and the reason is, we're investing tons of money and we ain't finished yet.

**Mr Hastings:** A couple of points, gentlemen. I can see, for now, setting aside solar water heating, because you're starting to add when you bring in the potential of fuel cells. But upon my return from afar, I hope to have some good information to give you that could be helpful on how solar water heating could be a fundamental choice for homeowners, if we can get the mortgage crowd to look at it, more as a marketing potential for the banks and the lenders.

The only other point I would like to raise is, in your screening, would it be possible that you indicate for the long-term report—is there some way we could ascribe a rough percentage of what the barriers are to getting some of these alternative fuel sources into operation? For example, would market barriers be 35%? It's probably creating an arbitrary percentage. If you could just explain in a brief paragraph how you arrive at a percentage for the readers next May versus, say, the institutional barriers, which might be more like 40% or 80% in some instances, based on your experience and what you see in other jurisdictions, especially Europe and the US. In Denmark, for example—the wind thing—was there huge market resistance or more institutional resistance to the implementation of wind energy, which I think is now about 12% to 15% over there, that sort of construct, possibly?

1120

**The Chair:** Do you have a response?

**Mr Rothman:** We can look at that. I make no promises.

**Mr Dalton:** The thought is that for the barriers analysis it's going to be done on a technology-specific basis. It's probably going to be a qualitative assessment, but we will say for each of the technologies that the primary barriers to the widespread adoption of this technology are market-related issues or institutional issues and outline what they are. That really provides the foundation and the framework for the subsequent evaluation of policies. There's not a generic number that we would have in the report saying that market barriers or institutional barriers contribute this amount, but I think what we are going to provide is the information you need and that we need to come up with policies that at the end of the day are going to be effective in terms of promoting the development and adoption of these technologies and fuels.

**The Chair:** We have a couple of minutes left. In view of how much time I've given to one party and not to others—

**Mr O'Toole:** There are four of us.

**The Chair:** I see Ms Churley nodding her head. Mr Bradley, do you have any—

**Mr James J. Bradley (St Catharines):** I'll let Ms Churley begin.

**Ms Churley:** I don't have any more questions. I'm satisfied.

**Mr Bradley:** I have made the transition from the government agencies committee—

**The Chair:** Yes, I can see that.

**Mr Bradley:** —to this committee at this moment. From the preliminaries I've got, we have some very good people working with us. I've been told that. I know our members have been able to direct questions and make comments, so I'm pleased with that, unless Ms Bontroggianni wishes to ask any more questions. She looks like she's fine.

**Ms Churley:** Actually, just a more technical question in terms of the process from here on in: after we adopt this today, are you going to consult with us again halfway through or are you just going to be in touch with the Chair, the subcommittee, should you run into any problems? I think you've got a lot on your plate in such a short term and it sounds as though people are adding things back to it today.

I presume, Mr Chair, that it might be useful for us if you want to tell us how you think you're going to fare if we put some of these things back on in terms of the very tight time frame you have. We've got to be realistic here. The last thing we all want is for you to have more than what you originally thought and not be able to complete it all. Do you have any comments on that?

**The Chair:** In view of your comment, certainly, and I was going to make reference to it, we can pull the subcommittee together quite quickly, and the subcommittee is a representative from each of the parties plus the Chair. Probably 48 hours, not considering weekends, would get a turnaround answer, guidance, direction for you, if that's helpful.



In view of the discussion, I think we should give a nod to some of the points. One would be on page 2, slide 4, the proposed objectives. When I say, "In view of the discussion," are people basically now comfortable with that? Are there any objections to that one at this point other than—

**Mr O'Toole:** I don't see in here—

**The Chair:** We don't need to repeat what we've been through, but if there's anything you—

**Mr O'Toole:** Yes. It's the same. I think number 2 agreed, but the idea of choice, like putting the demand side back at the customer level as opposed to purely the aggregate market, because really it's about customers making choices about, "I prefer the environment" versus—you know.

**The Chair:** Then moving on to page 5, the screening process and evaluation using barriers: I personally really like that.

**Mr O'Toole:** Yes. It's very good.

**The Chair:** I had all this in my mind but you've streamlined in graphic form and I find that very helpful. Does anybody have any problems with that particular page? I think if we can just as a committee say yea to these, then it's helpful for you people.

The short list: I hear you loud and clear that maybe we'd better get fuel cells added to that. That's the general message I'm hearing. Are people comfortable, otherwise, with the short list?

**Mr Parsons:** I'm not.

**Mr Ouellette:** Neither am I.

**The Chair:** You were looking for more agricultural involvement there.

**Mr Ouellette:** Yes.

**The Chair:** Take that under advisement.

**Mr O'Toole:** If I could add one statement to that: in five years, everything including farm waste and septic systems is going to have to go through a system. Now they're not burning it, by the way; they're making it into pellets and land-applying it. That's not going to be permissible, so you'd better look into how we're going to burn it and recycle all the whatever.

**The Chair:** Or digest it, compost it.

**Mr O'Toole:** Yes, all of it. Septic tanks and everything are going to have to be pumped out and put through sewage treatment.

**The Chair:** The other one would be the very last slide, number 14 on page 7; I know some of that is going to vary, but the generalities to start with. OK.

The other comment I was going to make on your aim for December 7: there's a wee bit of leeway in that we'll be meeting on December 12 for you to come back to it. On the other hand, it would be nice if we had some paper in our hands prior to that to review a bit.

The other thing: we're just about to table our first interim report from what we heard on our first consultations. The package you come back with, some of the thinking—and it's not a vote of the committee at this point, but I think there's a general consensus that we would use your package as a second interim report prior

to developing a final report for May—that's the direction we currently have—that we would like to take that package, massage it as the committee sees fit and use it as the basis for a second interim report. We're probably looking at February to table that interim report but there's no firm deadline on it.

Any other last comments before we excuse the delegation?

**Mr Gilchrist:** A minor point. In assessing the various criteria, might we prevail upon you to give some thought to the geographical implications of energy production and use in this province? There very well may be applications in remote parts of northern Ontario that right now are using diesel generators. You can't compare the status quo cost of electricity in southern Ontario to what it's costing us today. So the whole economic equation changes, the environmental equation changes because we have to truck the diesel in once a year, in winter when the rivers and lakes freeze. Maybe there are places where wind or solar already today make sense economically—whether or not as a matter of policy the government should be making different decisions based on northern and remote parts of the province and those more populous areas in the south. I just ask you to give some thought to that when you're developing your recommendations and doing your economic model.

**Mr Dalton:** We were sensitive to that. I think that's what caused some of the alternatives that made the short list, just because we recognized that there are specific situations associated with northern communities that might lend to certain technologies to be cost-effective there which wouldn't be viewed as cost-effective if they were part of the greater Ontario grade.

**Mr Gilchrist:** Thank you.

**Mr Ouellette:** I just want to make sure that my comments regarding the low-flow hydro were included, because that wasn't brought up at the end, and the deep mine issue as well under geothermal.

**Mr Dalton:** With respect to low-flow hydro, we do have small-scale hydro which I think would be subsumed within that.

**Mr Ouellette:** I hope it's included in that, although the indications do not specifically say that. It's technology that's currently being utilized, I know, in British Columbia and it just needs to be brought out here from other jurisdictions.

**Mr Dalton:** Right. I think our approach would be to identify it as a potential technology with the focus being in terms of the barriers for market adoption. I think that really does not need to be technology-specific. By looking at a broader subset, small-scale hydro I think will cover that.

**The Chair:** Thank you very much. Please, any contact is through the clerk and she can quickly get hold of the rest of us. That doesn't preclude your phoning other people if you so desire, but to trigger the subcommittee etc, a phone call to her will make that happen quite quickly. We look forward, with great confidence in your ability, to your report in five weeks' time. With nothing further, thank you very much for being here.

Mr Bradley, I commented earlier in the subcommittee's report about the next four dates, particularly the next three, namely, November 21, hopefully November 28 and December 5, and the possibility of using room 151. The committee that you chair normally is there. Did you get a chance to review that with your subcommittee? 1130

**Mr Bradley:** I did discuss it with the subcommittee and they certainly, to a person, like to see the government agencies committee in that room, for a variety of reasons. Nevertheless, they did say that on special occasions there could be arrangements made to trade rooms. The government agencies committee does not necessarily meet every week; it meets as is necessary. It will be meeting two weeks from today; it's scheduled, in other words, to meet two weeks from today, because they do have appointments scheduled. Nevertheless, as I say, it does not necessarily sit every week unless there is a necessity for it. So between the committee Chairs and the clerks we can make an arrangement to share the room. There was not an adamant no to it, let's put it that way, and they felt there should be flexibility. Particularly, as I mentioned to them, when there were presentations being made to our committee it would be advantageous to—

**The Chair:** Basically, we're asking for those three days and I don't see any other—into the spring I see it quite differently. If they are willing for those three days, I think that's—

**Mr Bradley:** I'll address those three days specifically and try to get their permission. There was not opposition in principle; I want to tell you that. They were flexible that way.

**The Chair:** Any other comments? I wanted to check with you, and it's good for the committee dates. Between you and me and the two clerks, we'll try and have this worked out so delegations coming before us will know well in advance. As a committee, we'll know which day we're going to sit.

**Mr Bradley:** Yes, you will know.

**The Chair:** We'll try and wrestle that out this week.

**Mr Bradley:** Very good.

**The Chair:** Thank you.

Moving on to the report, a single sheet has been circulated. I had asked for the changes that we had discussed at the last meeting. Maybe we'll go through that sheet. Committee's comments on that sheet?

**Dr Bob Gardner:** This is a memo from me dated November 5, and what we just tried to do, under Dr Galt's direction, was to highlight the main changes that you asked for so that they're on that double-sided sheet of paper. I think Dr Galt's hope was that you would look at them, approve, revise, adapt and then leave us. We will certainly do some final copyediting and some cleanup but essentially that would be the end of the interim report.

**The Chair:** Having read it, I was comfortable with it.

**Mr Gilchrist:** I guess the only question I would have is about the deletion on page 5 of one of the recommendations relating to the general policy framework. If you were uncomfortable with the current wording, might

I suggest that rather delete the last sentence altogether, something be substituted in that says, "What possible mechanisms could the government use to play a role," or "What possible government agencies could play a role in joint financing of alternative fuel/energy capital projects?" If you don't like the direct reference to SuperBuild—and quite frankly I do see referring to just one agency is limiting, but are we eliminating other considerations and the ability to implement the things we're ultimately going to recommend by not having as part of our consideration what mechanisms the government has to play a role to influence the evolution of alternative fuels in the marketplace?

**The Chair:** Comments from the committee? Anybody disagree with Mr Gilchrist's suggestion? In other words, leave it, but don't make specific reference to SuperBuild, just capital in general.

**Ms Churley:** I got distracted here for a second. I apologize.

**The Chair:** The single sheet that—

**Ms Churley:** Yes, I have that, but where is the SuperBuild—

**The Chair:** Go to the back. "The following was eliminated from the policy questions on page 5: Can SuperBuild...." Mr Gilchrist, as I understand it, is suggesting we remove "SuperBuild": "Can the government play a role in joint financing of alternative fuel/energy capital projects?"

**Ms Churley:** We took it out because I thought most people agreed—you weren't able to be at that meeting. I made the point that there are a lot of demands on the SuperBuild fund, more demands already than can possibly be met, water and sewer treatment plants and all of the other infrastructure demands that both SuperBuild and OSTAR cannot even keep up with. I'm really concerned that we throw this in there and say, "Here's another place where we can try to draw on SuperBuild funds." I understand why it was in there: we're trying to find a funding source. I just don't think SuperBuild can take any more demands on it.

**Mr Gilchrist:** That's what we're saying, to take the word "SuperBuild" out.

**Ms Churley:** Oh, I thought it was out.

**Mr Gilchrist:** No, you've taken the whole sentence out. In other words, there would be nothing in our consideration about possible other ways that—

**Ms Churley:** Oh, I see. I'm sorry. I thought you were suggesting—OK.

**Mr Gilchrist:** I'm saying leave a sentence in there that doesn't restrict—

**Ms Churley:** I should have been listening.

**Mr Gilchrist:** —our consideration to SuperBuild, but just generically says, "Can the government"—or maybe, to make it consistent with the other questions, "Should the government"—"utilize one of its agencies or ministries to play a role in joint financing," etc.

**Mrs Bountrogianni:** We would hope so.



**Mr Gilchrist:** OK, but again, if the question isn't posed, I think we might have difficulty later on in crafting the report.

**The Chair:** Rather than taking it out, just reword it without "SuperBuild" in it.

**Ms Churley:** Without identifying it as SuperBuild. Sure.

**The Chair:** Everybody comfortable with that?

**Ms Churley:** I do apologize for not listening and us having to go through all of this again, but I agree.

**The Chair:** That's OK. Thank you. Other than Mr Gilchrist's suggestion, any opposition to what's been circulated on this page?

**Ms Churley:** One comment around the efficiency and conservation, the way it's worded. Steve, again this is something that I and the committee agreed should be put back in as a focus, because it was missing from the first edition of this.

It was interesting in the energy estimates yesterday. I was asking Minister Wilson about energy efficiency and conservation, and he blew his top a little bit, didn't he?

**Mr Bradley:** I'm surprised to hear that.

**Ms Churley:** In a positive way in this case. He had said he had made it very clear as the energy minister that he wanted to see energy efficiency and conservation as part of the mandate of this committee, and I was pleased to hear that. That had not been communicated to us.

Having said that, I'm just wondering if that paragraph can be strengthened even more. I suppose it's OK. In my view, I've always wanted energy efficiency and conservation to carry as much weight as everything else in our mandate. It's a minor point, I know, but there's a little bit of a sense of—I suppose it's technical in that it wasn't clarified within all of the explanations of what alternative fuel is, but we've always said from the beginning that we see that as part of our mandate, and I'd just like to see it given as much weight as everything else.

**The Chair:** Your point's well taken and has been in the past. I reflect back on my comments made earlier, and I was purely looking at the mandate as we developed the objectives and what the mandate said or didn't say rather than—but your point of its importance is extremely well taken, and I think the wording clarifies it here.

1140

**Ms Churley:** We could change it to say, "The committee feels that energy efficiency and conservation should carry equal weight as alternative fuels." That way it strengthens—it is a minor point, I know, but I like to see—

**The Chair:** That may be pushing our mandate—

**Ms Churley:** Well, we do think that it should carry as much weight, that it shouldn't just be an add-on, don't we?

**Mr Gilchrist:** The moment you use the word "equal," we are starting to make judgments again about what the end game would be. Should it be a consideration? Nobody disagrees. I think the wording here captures the spirit of that. We've certainly all put it on the record, and

the minister put on the record yesterday what he thought our committee should be doing too.

**Ms Churley:** All right. It is a minor point.

**Mr Gilchrist:** You can keep pulling out Hansard to remind folks of that.

**The Chair:** OK. We've got agreement on that. Anything else?

**Mrs Bountrogianni:** Are we going to talk about the editorial changes? Would you like me to make that motion, or do we need a motion for that?

*Interjection.*

**Mrs Bountrogianni:** Just agreement? This following thing too? OK.

Mr Peter Hargreave, one of the interns, made some excellent editorial changes to the interim report. You must have a copy in front of you.

**The Chair:** Has that been circulated?

**Mrs Bountrogianni:** I circulated it earlier. Are they stockpiled somewhere?

It makes the flow of the report much improved. I thank Mr Hargreave; I think it is excellent. We don't need a motion, but if there is agreement—

**Mr Gilchrist:** I've had a chance to go through it. Are you inviting comments, Chair?

**The Chair:** Do you have any comments at this time?

**Mr Gilchrist:** Or would you rather we follow through the report page by page?

**The Chair:** No. This is just the tidying-up stage. We really did that at the last meeting.

**Mr Gilchrist:** Starting with page 2, second full paragraph, the word "why" should come out of there as well, if you're inserting the rest of that sentence as a new clause in the next sentence.

Then when you get down to the paragraph below that, I think it makes it a little clearer—it is about the seventh line, "If higher,..." You've deleted a word. I would have added "than traditional electricity sources." You don't say higher than what.

The very last paragraph: I don't like starting sentences with a "But." I would have made those two sentences one.

On the next page, under "Next Steps," I would have added specifically "Internet access" as one of the mechanisms the committee will use to hear from Ontarians. After "public forums," I would add "Internet access."

**Dr Gardner:** If I may, Mr Gilchrist, there is a little difficulty in that these excellent editorial comments are on the report before the current one, and we do have the Internet Web site and some "Next Steps" filled out at the end of your current, November 5 report. We have that covered. Thank you.

**Mr Gilchrist:** Fair enough.

**The Chair:** One of the difficulties is that this was done prior to yesterday, when the changes came through.

**Mr Gilchrist:** If any of the changes I'm suggesting are now moot, then simply ignore them.

Minor grammatical changes:

Under "Next Steps," third paragraph, I think it reads better to say, "What will the implications be," than,

"What will be the implications," and the same change for the first paragraph on the next page.

On page 5, under "'Green Power' Initiatives of Ontario Power Generation," I'm going to suggest there might be merit in adding expressly the question, "Is it appropriate to require OPG to generate a certain percentage of its electricity from alternative fuel sources?"

Then leaping forward to page 8.

**Dr Gardner:** Excuse me, Mr Gilchrist, I don't have a page 5 in my package. Which one are we on?

**Mr Gilchrist:** The same one that Marie has handed out here. There's a 5 at the top. The categories are "Emission Trading and Credits Policy" then "'Green Power' Initiatives of Ontario Power Generation."

**The Chair:** I think what you're doing, Mr Gilchrist, is just a few words here and there. Why don't you just write them down and give them to the researchers.

**Mr Gilchrist:** Excellent. OK. Let me deal with the more substantive things very quickly. There are some questions that might have been addressed before and have been rejected. If they have, then just tell me that; if they haven't, make your thoughtful response.

Under "'Green Power' Initiatives of Ontario Power Generation":

"Is it appropriate to require OPG to generate a certain percentage of its electricity from alternative fuel sources?"

Under the category of "Natural Gas for Electrical Generation":

"Is it feasible to consider a complete ban on coal use in the medium-to-long term?"

Under "Alternative Transportation Fuels" in the second paragraph:

"Should the use of ethanol in all gasolines sold in Ontario be mandated?"

Under "Fuel Cells and Hydrogen":

"Should the government assist in the creation and operation of a significant hydrogen fuel cell stationary demonstration project?"

The last comment I would make, under your "Miscellaneous Fuel/Energy Sources," is to address the point raised by Mr O'Toole earlier that some reference be made to the ITER project.

**The Chair:** Basically, these are just streamlining the comments, from what I hear.

**Mr Gilchrist:** I would say it is probing to ask certain other—

**The Chair:** I did not have it in front of me as you were going. But that's OK.

**Mr Gilchrist:** If any of those questions are ones that you wouldn't like asked, then I'm game for a debate. Otherwise, I'll turn the whole thing over to the re-

searcher. If we are of one mind that those are worthy additions to the questions, might I prevail upon—

**The Chair:** Are people comfortable? Anything else on what you were proposing for Mr Hargreave?

**Mrs Bountrogianni:** No. I thank him and Mr Gilchrist for their editorial skills.

**Mr Ouellette:** I have just one point regarding Mr Gilchrist's comments in regard to ethanol. I don't think we should limit it to ethanol, because methanol might be an alternative as well. We discussed that in the past, listing them as environmentally friendly oxidizing agents.

**The Chair:** Is that a specific spot in the report?

**Mr Ouellette:** He mentioned it; I didn't have the page he was referring to.

**The Chair:** You're suggesting that it should be ethanol/methanol.

**Mr Ouellette:** No. It should not be specific to an oxidizing agent, because there may be other alternatives that are friendly as well.

**Mr Gilchrist:** I would be happy to replace the word "ethanol" with a general reference to oxidizing agents.

**The Chair:** Alcohol or whatever. OK. Other comments?

The question that I as the Chair should put at this point is: are there any dissenting opinions? We are agreeing. OK, so I can skip that.

Shall the draft report, as amended, be adopted? Agreed. Of course, that will be with obtaining direction on checking final changes through the Chair and/or subcommittee.

Shall the report be translated and printed? Agreed.

Upon receipt of the French translation, shall I present the report to the House and move its adoption? Agreed.

**Mr O'Toole:** It isn't essential that the report be presented after the translation. It could be presented before. Personally, I know the reports that I have submitted in the House have been done before. The nuclear committee was one.

**The Chair:** In this case, with constituency week coming up—

**Mr O'Toole:** There's lots of time to do it?

**The Chair:** —we have enough time. We will get it presented during the week after constituency week.

Anything else to come before the committee at this time? Thank you very much for your understanding today, particularly as I got messed up in circulating among the caucuses—my apologies for that. It's just because so much has been informal with this committee and it has been in such a non-partisan sort of way that we are all working to the same end.

**Ms Churley:** Apology accepted.

**The Chair:** Committee adjourned.

*The committee adjourned at 1150.*











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## Legislative Assembly of Ontario

Second Session, 37<sup>th</sup> Parliament

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# Official Report of Debates (Hansard)

Wednesday 21 November 2001

# Journal des débats (Hansard)

Mercredi 21 novembre 2001

**Select committee on  
alternative fuel sources**

Ministry of the Environment

Committee business

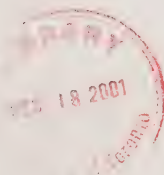
**Comité spécial des sources  
de carburants de remplacement**

Ministère de l'Environnement

Travaux du comité

Chair: Doug Galt  
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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Wednesday 21 November 2001

Mercredi 21 novembre 2001

*The committee met at 1003 in room 151.*

## MINISTRY OF THE ENVIRONMENT

**The Chair (Mr Doug Galt):** I call to order the select committee on alternative fuels. I welcome Tony Rockingham as a delegation. We're a bit shy on members at this point, but we look forward to your presentation. We've set aside half an hour. We want to hear your views. If you're comfortable, perhaps you'd like proceed, unless committee members have any comments they want to make prior to getting started. Everybody looks quite agreeable, so perhaps you'd lead off.

**Mr Tony Rockingham:** Thank you very much, Dr Galt. Maybe I could introduce two staff from the Ministry of the Environment who may be able to answer questions, depending on the wishes of the committee.

**The Chair:** Perhaps they would like to join you at the table.

**Mr Rockingham:** OK. I'll ask John Hutchison to join me, and Robyn Kurtes who is also here. We might ask her questions later on, depending on where they go.

We appreciate the invitation to present to you the key features of the emissions trading regulation and to highlight the implications for green power producers in Ontario. What I have proposed, and I hope members have copies of the presentation slides—

**The Chair:** You're going through this?

**Mr Rockingham:** Yes. In the presentation I propose to highlight the context for the emissions trading regulations, move through some of the details of the regulations and the tools being applied to protect and improve air quality in Ontario, and then discuss the implications for green power producers in the province.

The first slide, entitled "The Context for Emissions Trading": as members know, the government has finalized the emissions trading regulation and that announcement was made on October 24. The announcement also announced a number of items that are very important for the context for emissions trading. Let me start by saying that emissions trading by itself does not reduce emissions. It's the caps that are associated with the emissions trading, the caps that the government has imposed on the emissions, in this case of nitrogen oxide and sulphur dioxide, and the proposals for other initiatives and accelerated initiatives to protect and improve air quality.

The first part of the announcement on October 24 was that the government is proposing to accelerate the sched-

ule for achieving air emission reductions. The government has committed in the past to a 45% reduction in NO<sub>x</sub> emissions and a 50% reduction in SO<sub>2</sub> emissions, and has now posted a proposal on the Environmental Bill of Rights to accelerate the target date for those commitments from 2015 to 2010.

The second element of the announcement on October 24 was establishing in law the limits on emissions from the electricity sector, and those limits, described in law in the regulation that was finalized, decrease over time.

The third element was the finalization, the regulation, the law requiring Lakeview to cease operation as a coal-fired station no later than April 2005, and there are major emission reductions associated with that.

The fourth element was the proposal to expand the caps on NO<sub>x</sub> and SO<sub>2</sub> to major industrial sectors; and then the fifth element was the finalization of the rules for emissions trading. Those rules are described in the emissions trading regulation and the code associated with that.

Those five elements completed the environmental protection framework for ensuring appropriate environmental protection in a competitive electricity market, and on that basis the moratorium on the sale of coal-fired stations was lifted. At the same time the Minister of the Environment gave approval to OPG to proceed with its proposed NO<sub>x</sub> emission control technologies, the SCRs at Nanticoke and Lambton stations.

On slide 3, so that I can give you more details on the commitment to cleaner air, on exactly what the government's commitments are for NO<sub>x</sub> and SO<sub>2</sub> reductions, the proposal is, as I've said, to move the targets for those emission reductions from 2015 to 2010. That would mean Ontario would reduce NO<sub>x</sub> emissions by 45%, and that's compared to a 1990 base, by 2010, and reduce SO<sub>2</sub> emissions from the limits that existed in the year 2000 by 50%, again by 2010. Both of those dates are consistent with the Canada-wide standard for ozone and particulates and will move Ontario forward to meeting those Canada-wide standards.

Perhaps I could comment at this point that those commitments to improve air quality by reducing emissions of NO<sub>x</sub> and SO<sub>2</sub> will by themselves provide some improved environment for the development of green power producers—alternative and renewal energy sources.

On page 4, so that I can provide more details on the electricity sector, as I said, the emissions of NO<sub>x</sub> and SO<sub>2</sub>

are capped by law. The details of that are shown in the next graph and maybe we can turn to that.

1010

I would draw members' attention to the left-hand side of the graph on page 5, where we show what the emissions currently are for OPG stations. For the coal and oil-fired stations in Ontario right now, we note that the total emissions are about 51 kilotonnes. There are emissions on top of that from what we term NUGs, non-utility generators. Those are cogeneration stations or smaller stations owned by TransCanada Power or Trans-Alta, other power generators. The total emissions, we estimate, are about 57 kilotonnes. I say "estimate" because we have not yet had all of the data in from the mandatory reporting regulation. We will have that data in shortly and we'll be able to be more precise in what the total emissions from the electricity sector are.

The important thing for members, I would suggest, is that the OPG emissions have to decrease immediately. They will have to go, when this regulation comes into force in 2002, from 51 kilotonnes to 48 kilotonnes even if OPG chooses to use the maximum number of credits that they are allowed under the regulation. I'll provide more details on what the credits are in a moment.

I would also point members' attention to the right-hand side of the graph, which shows that by 2007, the entire electricity sector will have to make major reductions in their NO<sub>x</sub> emissions.

That's what the emissions trading regulation defines. It defines the emissions trading rules and also the caps over time that the electricity sector must honour. I would point out that those caps decrease over time.

On page 6, I would just point out that the government has proposed expanding the emission caps to include other major sectors such as the cement industry, the iron and steel sector, the chemical sector, the refinery sector. Those discussions are underway right now to see what the appropriate levels of those caps are or exactly how those sectors will ensure that their emissions are reduced.

I noted in some of the previous discussion of this that there was some discussion about what percentage of emissions were covered by the emissions trading regulation. On slide 7, I would point out that the electricity sector right now is responsible for about 15% of the NO<sub>x</sub> emissions in the province and about 23% of the SO<sub>2</sub> emissions.

Moving to emissions trading in more detail, slide 8 addresses the question, "Why Emissions Trading?" I would point out that there has been good experience with emissions trading. There are a number of systems working in the US, and the United States Environmental Protection Agency is extremely pleased with the results. Trading provides the industry with the ability to plan their environmental investments along with their natural business cycles.

To reduce the cost of meeting tough environmental targets, it provides incentives for going beyond environmental compliance. So the system does reward industry leaders. It provides short-term flexibility so that as

business opportunities arise to provide the goods and services that society demands, industry has the flexibility to be able to provide those services while ensuring that the environment doesn't suffer as a result of those business cycles.

In Ontario, we have adopted an emissions trading system that builds on the experience we've noted on emissions trading systems in the US and also some of the pilot programs we have had in Ontario. What we've adopted is an emissions trading system that allows the trading of permits but also allows the creation and trading of credits. The reason for this is that Ontario has a very limited number of power stations. What we're trying to do with emissions trading is ensure that there is adequate flexibility, and to use market mechanisms so that owners of power stations are in a better position to assess the benefits of different emission reduction strategies.

To have a market, we need more than just six players that have the same technology opportunities. We note that in the States the successful emissions trading systems have many more than six players and that there have been robust markets that have developed. By introducing credits, the ability to create credits and to trade credits, we are expanding the trading market and making it a more efficient system. Also, by allowing the creation of credits and the trading of credits, we are able to provide incentives for people in the entire Ontario airshed, not just within the Ontario political boundary, to reduce emissions. This is extremely important in Ontario because over 50% of the pollution is specifically associated with ozone, so for NO<sub>x</sub> and SO<sub>2</sub>, which are the two pollutants we have capped in the regulation, we can provide incentives to people in the Ontario airshed who are in Ohio, Michigan or New York for them to reduce their emissions.

As well, the fifth bullet here is that credits provide incentives for reductions across the economy, not just from the facilities that are named in the regulation.

The final slide here addresses some of the specific questions the committee posed, and that is, what are the implications for green power producers? As I've said before, the regulation that caps emissions from fossil-fired stations, by itself and quite independently of emissions trading, will improve in my view the economic environment for the development of green power sources, because it forces the fossil fuel stations to recognize the environmental impacts to at least a greater degree than they have in the past.

However, the government went further than that. In the trading rules it established a set-aside for renewable energy, which can provide financial incentives for the development of new, renewable energy projects. We look forward to seeing how that works and what sort of incentives result from that.

I would point out that there are still some issues that remain with the application of that set-aside and how successful it's going to be. I'm aware of a couple of the issues through the public consultations. A lot of renewable energy producers want to sell their power as



green power, and they expect the market will willingly provide greater revenue to them, or they will reflect greater prices.

I think there needs to be some discussion, which we will have in the coming months, about whether someone who, for example, builds a windmill, can prove they are displacing some of the NO<sub>x</sub> and SO<sub>2</sub> associated with electricity generation and are therefore eligible for some of the allowances that are created in the set-aside. If they claim those allowances and then sell those allowances, can they still be considered green? In effect, they have created a credit which someone else will use to increase their NO<sub>x</sub> or SO<sub>2</sub> emissions. That's an issue we need to discuss further with stakeholders.

Stakeholders have also brought to our attention the fact that there are a number of different pollutants and that NO<sub>x</sub> and SO<sub>2</sub> by itself does not define what a green power producer is.

With that, I hope it's useful and I'm available to answer any questions.

**The Chair:** Thank you very much for the presentation. I wonder, as long as there are no objections from the committee, if you could take maybe two or three minutes and just talk philosophically about emissions trading and why a government would bring it in, what's good about it, what's bad about it, forgetting what has happened or what is happening. You have gone through that very well, but the committee is having trouble getting a handle on the idea of emissions trading. It has a dirty connotation to it, just in its name alone; maybe "emissions credit" sounds a little better.

This is what the committee is really wrestling with, and why, if you set up a windmill and you buy—maybe I'll leave it to you, if you don't mind putting a little handle on that.

**Mr Rockingham:** I think the issue is that in a competitive market we want the owner of the station to make the assessments about the risks associated with particular types of investments or strategies that will allow them to meet environmental regulations.

In the past the regulation the government has used to control acid-rain-causing emissions put a cap on the total emissions from OPG as a corporation. So that meant the corporation was in the driver's seat in terms of deciding where it wanted to put its limited resource or its investments to control emissions from the fossil power stations as a whole. For example, it had chosen to put scrubbers into the Nanticoke station—sorry, into the Lambton station. The government said, "As long as the corporation meets the cap that is imposed on the corporation, then that meets the regulation."

1020

In the competitive market, we expect and we are requiring OPG to divest itself of a number of its coal-fired stations. Then the government is left with, should it decide what are the allowable total emissions from each individual station? To do that, we would need to know how that station intended to operate, what the appropriate technologies were and what the expected life of the

station was. In a competitive environment, that information is very difficult to come by.

The emissions trading regulation basically says, "The environment is protected if the sector as a whole is limited in its emissions," and then it's the market that decides which station will emit what, as long as two things are respected: the cap that's defined in the regulation and every other environmental regulation associated with those stations. For example, Nanticoke has a certificate of approval that defines what are the rates of emissions allowable, but that's so that, at a maximum rate of emission, the community nearby is protected. We don't expect Nanticoke to operate at that maximum rate all the time. If it did, its emissions would exceed the amount the environment can withstand.

**The Chair:** We have about three minutes per caucus. I'll start with the official opposition and work my way around.

**Mr James J. Bradley (St Catharines):** I would first state my bias against emissions trading, or pollution trading, as I call it. Would you not agree that the greatest impact on the people of Ontario can be achieved if our coal-fired plants are compelled to burn as cleanly as possible—in this case, it would be natural gas—as opposed to hoping that some plant in the US Midwest may reduce its emissions, its pollution, and that somehow it won't make it to Ontario?

If I can be parochial enough, my own city chokes on Nanticoke, the Niagara Peninsula chokes on Nanticoke: the SO<sub>2</sub> emissions, the NO<sub>x</sub> emissions and the 29 other contaminants that come over the Niagara Peninsula and in northern New York state. Isn't it much better to compel all jurisdictions, including our jurisdiction over which we have control, to in fact reduce to the minimum in terms of emissions, rather than hoping that somehow we're to get some benefit from something that happens in the US Midwest?

**Mr Rockingham:** I certainly agree that if you close all the coal-fired power stations you would eliminate the emissions from those coal-fired power stations.

**Mr Bradley:** I didn't say "close," I said "convert."

**Mr Rockingham:** If you wish to minimize the emissions from the coal-fired power stations, you close them. Natural gas also has emissions.

**Mr Bradley:** I know natural gas does, but before you start tagging me with wanting to close them, I did not say "close them," I said "burn as cleanly as possible," and I'm talking about natural gas.

**Mr Rockingham:** My apologies. I was just trying to set up the answer. It depends very much on what replaces the electricity if you make modifications to a particular station. You have suggested that if all jurisdictions were to convert to natural gas, then Ontario would be in a position to convert to natural gas. The concern is that if Ontario were to convert to natural gas, it may mean that the power production in the US Midwest, which is within the Ontario air shed, would just be increased and the coal-fired emissions would still enter the Ontario air shed. Your constituents would be no better off.

**Mr Bradley:** I would contend that they would be better off because the local source has been eliminated.

The next question I have, if there is time, is the penalties for non-compliance. What happens if they do not comply?

**Mr Rockingham:** The penalties in the regulation are those defined under the Environmental Protection Act, so there are penalties that range all the way from fines to stiffer penalties than that.

**Ms Marilyn Churley (Toronto-Danforth):** Thank you very much for your presentation this morning. I want to have you elaborate a little bit more on the difference between the US trading system and what you're proposing here.

**Mr Rockingham:** The trading system I would compare it against is the trading system that has been proposed under what's called the NO<sub>x</sub> SIP Call, and that is a trading system that is expected to be in place in the coming years in 22 states that are around the Great Lakes, many of them in the Ontario air shed. They have capped coal-fired stations—there are some 200 coal-fired stations—and they allow trading of those allowances among the coal-fired stations for the ozone annex, which I think is also important in this context. The annex also allows permits to be purchased from capped sources outside the region.

In Ontario, as I said, we allow trading of allowances or permits, and as well, credits where those credits reflect real reductions in emissions from sources that are not named in our regulation.

**Ms Churley:** I understand why you said you're doing it differently. From your perspective, they have over 200 power plants there and we have far fewer. But to expand on what my colleague Mr Bradley mentioned, the concern with this program of course is—let's take, as an example, Hamilton. How does one ask a member to go back to their own community and say, "We may have more net pollution here, but somewhere in the US they've reduced it. There could be more pollution spewing out over us in a trade, but overall it's helping the global warming situation." That's a problem with this program.

**Mr Rockingham:** Right. I think the key is to recognize that we're dealing with pollutants that travel long distances. Using Mr Bradley's reference, when there is a smog event in the Niagara Peninsula, that's largely because there have been smog events in the US that have moved forward. There are environmental regulations that protect the local community, because some emissions go up the stack and drop very quickly, but most emissions—certainly the NO<sub>x</sub> and SO<sub>2</sub> emissions—enter the atmosphere, have a long residence time and move across the countryside. In fact, as I say, a lot of the pollution that causes smog events in Ontario is due to polluters in the US.

**Mr Ernie Hardeman (Oxford):** In your presentation, you refer to the numbers across the sector. The reason we have the emissions trading is to allow the competitive industry to work properly. Does that not take away ultimately from the competitor to have someone who

wants to invest in generation that will lower emissions, but they can't do it because somebody with higher emissions will not sell or will not provide that opportunity unless they buy the old coal-fired plant that is well beyond its useful life? But they hold the emission numbers, so they won't let someone put in a different type of generation. They're still going to have some emissions.

**Mr Rockingham:** This was an issue that was raised in the consultation period. I think the regulation addresses it very well. First of all, I would point out that the allocations are made on an annual basis. In the transition period, there is a slightly different system, but when all emitters are capped, starting in 2008, there is a competitive system for allocating emissions so that existing emitters have no advantage over new emitters. For example, a Sthite-type station, such as is proposed for the Mississauga area, is expected to be extremely clean when compared to a coal-fired station. However, its allocations will be based on the amount of power it produces, rather than the total number of emissions. So there is a real incentive. Sthite is essentially getting rewarded for being a cleaner emitter. So it will in all likelihood receive more allowances than it needs, and its dirtier competitors will receive fewer allowances. There's a direct financial incentive, as projects are on the drawing board, to improve them, to find ways to reduce their emission rates.

So no, I don't think there is a problem in the current regulation with existing stations having a competitive advantage over new stations.

1030

**The Chair:** We're down to about 30 seconds.

**Mr Jerry J. Ouellette (Oshawa):** Actually, I have a number of questions, but because of time I just want to ask about end-user credits. One of the problems is that there's no incentive for end users to receive credits when utilizing green energy. Why would General Motors in my riding buy green energy when they don't get any credit for it? Is some method being looked at so that the end user would have some incentive to use receive credits for using green energy?

**Mr Rockingham:** I would start from the point of view that emissions trading and the emission caps are not the only mechanisms we've seen as we've reviewed mechanisms to encourage green power. There are other mechanisms that have worked out quite well in other jurisdictions. I wouldn't look to emissions trading as the only mechanism to encourage green power. Primarily, emissions trading is about ensuring that emissions are capped and that the cap can be robust and still allow for a competitive market.

**Mr Ouellette:** But there's no incentive for the end user to comply with the green power.

**The Chair:** We're going to have to move on. Thank you very much for coming forward. We appreciate the input.

ONTARIO CLEAN AIR ALLIANCE

**The Chair:** Our next presenter is Jack Gibbons. Welcome. We look forward to your presentation. As



you've heard, we're struggling with emissions credits, trading, whatever, for the committee to better understand it, so consequently we look forward to your comments.

**Mr Jack Gibbons:** Thank you for the opportunity to talk to you today about emissions trading. I'm Jack Gibbons from the Ontario Clean Air Alliance. We're a coalition of 79 organizations that represent over 6 million Ontarians. Our goal is very simple: we want to phase out the five coal-fired power plants in Ontario to protect public health and the environment.

**Emissions trading:** I want to talk to you briefly about four major flaws in the government's proposed emissions trading system.

The first flaw, and maybe the most important one, is the fact that it does not achieve compliance with the ozone annex that Canada and the United States signed last December. The second flaw is that it will allow the sulphur dioxide emissions from the coal-fired power plants to rise between now and 2006. The third major flaw is that it only caps two of the 30 pollutants that come out of the coal-fired power plants. It will allow the 28 other pollutants to rise. Finally, to the best of my knowledge, the proposal does not yet include penalties for polluters who break the cap, whose emissions exceed the cap.

Let's turn to the ozone annex. The ozone annex is a treaty that was signed between Canada and the United States last December. That treaty caps the nitrogen oxide emissions, which are smog-causing emissions, from southern Ontario's fossil-fired power plants, starting in the year 2007. That cap is in terms of nitrogen oxide emissions. Nitrogen oxide emissions can be measured in two ways: NO, or nitric oxide, or NO<sub>2</sub>, nitrogen dioxide. These are two different ways of measuring the same pollutant.

Everyone else in North America measures nitrogen oxide emissions in terms of NO<sub>2</sub>, but Ontario Power Generation and the government of Ontario measure it in terms of NO, and that leads to a lot of confusion. If you measure it in terms of NO, your emissions look a lot lower than if you measure it in terms of NO<sub>2</sub>. So that leads to a lot of confusion and it makes Ontario look better than it is to people who don't understand that detail.

Since the government of Ontario and Ontario Power Generation measure it in terms of NO, when I'm talking to you today, I'm going to talk to you in terms of NO emissions. But if you look at the actual ozone annex, those are measured in terms of NO<sub>2</sub>.

The cap for the southern Ontario power plants, starting in 2007, is 25,000 tonnes in terms of NO. That's the cap we must achieve to honour our treaty obligations with the United States of America.

**The Chair:** If I could interrupt for a second, what we're struggling with is the advantages or disadvantages of emissions trading, rather than what the government is or isn't doing now, so we can understand that better, so we can promote the idea of alternative fuels. That's what the committee is after. Maybe we didn't send out the

proper message. We're struggling with this emissions trading, good or bad.

**Mr Bradley:** Since we allowed the Ministry of the Environment to purvey its propaganda, I think we should allow all witnesses to say what they want to say.

**The Chair:** I'm just expressing the direction.

**Mr Gibbons:** I'm trying to get to it. I'm sort of trying to lay the groundwork.

**Ms Churley:** Just for a point of information, we need that background to understand.

**The Chair:** OK, go ahead.

**Mr Gibbons:** The ozone annex requires a cap of 25,000 tonnes, starting in 2007. If you look at the government's emissions trading proposal, the cap set out in their document says 25,000 tonnes. So superficially, it looks like they're totally in compliance with the ozone annex. The issue is that the government of Ontario's cap for the fossil-fired power plants has two components: allowances and emissions reductions credits. The allowances are set at the right amount for the ozone annex, 25,000 tonnes, but under the emissions trading proposal, the fossil power plants in southern Ontario are allowed to exceed their allowances cap by 33% by emissions trading. So basically under this emissions trading scheme, because there is emissions trading, the fossil power plants are allowed to exceed the ozone annex cap by 33% in 2007. That's just not right because that doesn't fulfill our treaty obligations with the United States of America, and Canada simply must live up to its international obligations.

David Anderson, the federal Minister of the Environment, has clearly stated that if the government of Ontario does not correct the situation, he will step in, the government of Canada will step in, and use their authority under the Canadian Environmental Protection Act to directly regulate Ontario's fossil power plants, to ensure we comply with our obligations to the United States of America.

Hopefully the government of Ontario will quickly come to its senses, before the federal government has to step in, because there's no question the federal government will step in, if they have to do so, to honour our treaty obligations to the United States of America. That's the first problem. We need to make sure the emissions trading system is consistent with the ozone annex agreement.

Now let's turn to sulphur dioxide emissions. That is the second emission that is capped by the government's system. There are two caps. In 2002 the new proposal lowers the existing sulphur dioxide emissions cap by 1%. In 2007 it lowers the sulphur dioxide cap by 18% compared to the status quo level. There are two problems with that. Basically those reductions are much too small. For example, with the 1% reduction that comes into play in 2002, because Ontario Power Generation's existing sulphur dioxide emissions are already below that cap, this new cap will actually allow Ontario Power Generation to increase their sulphur dioxide emissions by 5% between now and 2006. So that's going in the wrong direction.

In terms of 2007, the cap will be lowered by 18%, and that's going in the right direction, that's positive, but it's not nearly enough. The government of Ontario itself has made the commitment to reduce our total sulphur dioxide emissions by 50% by 2010, so we're going to need much larger reductions to achieve that overall 50% reduction, and Ontario Power Generation is one of the least-cost sectors to get those reductions from. So we need bigger reductions. As I said, the Ontario government itself has committed to a 50% reduction overall by 2010, and even that's not enough. The Ontario Medical Association has said we must reduce those sulphur dioxide emissions caps by 75% to protect public health. So we need to go a lot further.

The third problem with the emissions cap and the emissions trading system is that, again, it only caps two of the 30 pollutants that come out of the coal-fired power plants. What can happen is that Ontario Power Generation could put in some limited end-of-pipe pollution control technologies to control those emissions, but then they could burn more coal and increase their total emissions of all the other pollutants from the coal plants—toxics like mercury and lead—increase their greenhouse gas emissions that cause global warming and climate change and increase their emissions of five cancer-causing pollutants. That's just not right.

#### 1040

Basically, under this proposal, Ontario Power Generation's reports forecast that between now and 2012 they will increase their total coal-burning at their coal stations and increase their total emissions by about 6% between now and 2012. Again, that's going totally in the wrong direction. We need to be phasing out these dirty, coal-fired power plants, not creating an emissions trading system that gives them a perpetual licence to pollute.

The fourth issue is the issue about penalties. To the best of my knowledge, the government has not specified what the penalties will be if a company exceeds their emissions under the emissions cap proposal. Mr Rockingham just stated a few minutes ago that there were penalties. I wasn't aware of that, and I would suggest that you ask him to provide you with the exact schedule of what the penalties are, because in the absence of strict emissions penalties, an emissions trading system can quickly degenerate into simply a licence to pollute; they break the cap and they pay a minor penalty. It's really critical if this system is to work that there be strict penalties so companies do not have an incentive to just break the cap and pay the penalty.

Those are the four key points I wanted to make. There's one other point I would like to make to address one of the points that Mr Rockingham made. Mr Rockingham suggested that it might not be in the public interest for the government of Ontario to tell Ontario Power Generation to convert its five coal plants to cleaner-burning natural gas. He said, "Well, we could do that, and then we could just be undercut by cheap coal-fired electricity imports from the United States." That could potentially happen, but there's no need for that to

happen. The government of Ontario foresaw that problem when they brought in the Energy Competition Act. The Energy Competition Act allows the government of Ontario, if it imposes strict domestic standards on our domestic power producers, to also establish emissions performance standards for any imports. So if we establish strict standards for domestic production, we can also establish strict emissions performance standards for any power imports. That will ensure that if we switch to cleaner-burning natural gas, then companies in Canada will not be able to import cheap, dirty, coal-fired electricity from the United States and undercut those new gas-fired power plants, make them idle and make them not able to recover their costs. The government of Ontario foresaw that problem and has put the solution into the legislation, so they should be commended for that.

Thank you very much, and I'm now open to questions.

**The Chair:** OK. We have about five minutes—maybe not quite—for each caucus, starting with Ms Churley.

**Ms Churley:** May I say at the outset that I think it's really important that we have an analysis before us of the existing proposal before us, emissions capping, so that we get another perspective of what the problems and issues are that we need to grapple with here on this committee.

I wanted to ask specific questions around a kind of emissions trading that you would accept and you would propose that would actually reduce pollution in Ontario. I don't think I hear you saying that you're opposed to some kind of emissions trading system, it's just the way we go about it. I see in your document that you say that "it is subject to legally binding emission caps that require it to reduce its total annual emissions." That's one of the conditions. In the US, for instance, does their system do that? Does their system actually require that there be lower total annual emissions?

**Mr Gibbons:** Yes. The American system is a good emissions trading system. There are strict caps that actually ensure that total emissions will go down. In the American system, the only people who are allowed to trade emissions credits or emissions allowances are companies that are subject to a legally binding cap. That's the problem, or one of the problems, with the Ontario system: Ontario Power Generation can buy credits from other companies that are not subject to a cap. So a car manufacturer, say, in West Virginia, could sell an emissions reductions credit to Ontario Power Generation even if that car manufacturer's total emissions are going up, and that doesn't make sense. You should only be allowed to sell emissions reductions credits if your emissions are going down.

**Ms Churley:** The earlier presenter, when I asked a question about the difference, said that their opinion—the Ministry of the Environment—is that there are fewer plants here. There are only six plants here and 200 in the US. My understanding of what he said was that therefore you couldn't transport that same plan here for that reason.



**Mr Gibbons:** That's certainly true. There are fewer players. Ontario Power Generation has six coal-fired power plants, but you also have to realize there are numerous natural-gas-fired power plants already operating in Ontario. So the total number of players is way more than six plants, and of course we're expecting more plants to be built.

Yes, there aren't 200 plants, and from an emissions-trading perspective, the more companies or plants you have to trade with, the better. But you can't just ignore the fact that the overall purpose of having a cap on a trading system is to protect public health and the environment. Our first priority has to be reducing emissions.

In terms of the ozone annex, it specifically says that the emissions of the fossil power plants in southern Ontario have to be 25,000 tonnes. That's it. That's the law. We're not allowed to escape that by trading with a car manufacturer in West Virginia.

**Ms Churley:** Could I ask you another question around an answer to a question from the previous presenters on the issue of—and I know you've been pushing very hard for this—converting the coal-fired plants to natural gas? When Mr Bradley asked a question around that, the answer seemed to consist of—it wouldn't make that much difference because of the plants in the US. I believe you were here for that question. What's your opinion on that? Essentially the answer seemed to be—

**Mr Gibbons:** I fundamentally disagree. Ontario Power Generation is the largest corporate polluter in the province. It's responsible for 23% of Ontario's sulphur dioxide emissions, 23% of our toxic mercury emissions, about 20% of our greenhouse gas emissions and about 14% of our nitrogen oxide emissions. If you convert those plants to natural gas, you'll get a dramatic reduction in emissions. Most emissions would be reduced by 100%, and that would provide huge public health benefits for the people of Ontario.

**Ms Churley:** You have recommendations before us. You're saying that emissions trading under certain conditions can be beneficial to the environment, but the way it's been done here will actually increase pollution. That's essentially what you're saying, is it not?

**Mr Gibbons:** Yes. If emissions trading is combined with strict emissions caps on all the key pollutants, it can lead to a huge benefit for public health and the environment.

**The Chair:** We'll move on to the government side.

**Mr John Hastings (Etobicoke North):** My first question, sir, relates to your approach to the emissions regime that's proposed and the rescue mission that Minister Anderson is going to take for us to help us have cleaner air. I'm so relieved that he's going to intervene to save us from ourselves, since we have such a terrible proposal here.

You've had conversations with Minister Anderson, I assume, regarding the regulation for emissions trading for Ontario under this existing proposal, correct?

**Mr Gibbons:** I haven't had direct conversations with Minister Anderson, but it's on the public record. Last

summer, Minister Anderson and then-Foreign Affairs Minister Axworthy put out a press release clearly stating that if the government of Ontario wouldn't bring in regulations to achieve compliance with the ozone annex, the government of Canada would use their authority to do so.

**Mr Hastings:** What do you think of the federal government's total absence of activity in starting to regulate the terrible emissions coming from the railway industry? Right now, emissions across Canada for CN-CP, as far as I can see in the federal registry, is completely—there is not even a comment. There doesn't even seem to be a proposal for this. That's another source of terrible air pollution.

**Mr Gibbons:** Yes, diesel fuel is very bad. Diesel fuel from trains is very bad and diesel fuel from trucks is very bad. We definitely need much stricter regulations of diesel fuel. I agree with you 100%.

**Mr Hastings:** Would you, as an organization, be presenting your views regarding the absence of federal action in that particular area?

**Mr Gibbons:** Our mandate is very narrow. Our mandate is just to address the coal-fired power plants in Ontario. That is the mandate I have from my members. I do not have a mandate to address other air pollution issues, but I agree with you it's an important issue.

**Mr Hastings:** Do you think you should go back and get that kind of mandate from your members, since we're dealing with air quality overall and the better public health dimension that we want to achieve over time?

**Mr Gibbons:** I think how the Ontario Clean Air Alliance can be most effective is to be focused, stick to its knitting, stick to its expertise, which is coal-fired power plants in Ontario. I think that's how we can make the best contribution. There are certainly many other environmental groups in Ontario and Canada that deal with other issues like diesel fuel.

1050

**Mr Hastings:** My next question deals with the cost to the consumer on the proposal you have if it were implemented with these new penalties. First, would it be consistent and harmonized with what you would expect in the trading emissions system in the US? For example, does it have tough pollution penalties, as you call them, at \$10,000 a tonne for two of the pollutants in its existing regime, or are they going to move to that in this new accord that comes into effect, I think you said, in 2008?

**Mr Gibbons:** In 2007.

**Mr Hastings:** Have your people done an analysis of what the cost is to the consumer in the existing regime proposed by the government of Ontario and in the regime you would propose with the accompanying changes, including the tough pollution standards? How would that translate out in terms of cost per kilowatt hour? We know there's a certain cost right now for doing business with Hydro in Ontario which results in some of these emissions, especially in the summertime, but it's not exclusively OPG. Yes, you're right; to a great extent there is. It used to be Inco and some of the other polluters. So

there's a certain cost per kilowatt hour under the existing pollution we have in Ontario now. If you move to your regime as proposed, what do you figure the cost would be in terms of that extra kilowatt hour? Have we got it in here?

**Mr Gibbons:** No, but I've got another report for you which I'm glad to give you, our Nanticoke Conversion Study, which is a study we did in association with companies like Stelco, TransAlta, Union Gas and West Coast Power. With the assistance of Ontario Power Generation, we analyzed the cost of converting the Nanticoke power plant to natural gas. Nanticoke is the largest coal-fired power plant in North America and it produces 60% of our coal-fired electricity. This study showed that we could convert Nanticoke to natural gas and that would raise average electricity rates by between 2.6% to 4.5%, depending on what your gas price forecast is. So we believe that for a very reasonable cost we can get a huge reduction in pollution.

**The Chair:** We'll have to move on to the official opposition.

**Mr Ernie Parsons (Prince Edward-Hastings):** This morning has helped me get a little bit of a handle on it, but I'm going to present a situation to you that I'm trying to envision. I am suspicious that with the difference in Canadian and American dollars, it's going to be fairly attractive to purchase electricity generated out of Ontario. Is it possible, therefore, that it would be to the advantage of a plant in the US that's producing dirty electricity—whatever that word means—to cease producing it, which would give them a significant number of credits that they could then sell to OPG, which would increase the cost of electricity for us? They could then purchase their electricity from OPG and thus we would get the pollution and the cost while they get the electricity and the cleaner air.

**Mr Gibbons:** I don't think that's the most likely scenario. I think what's most likely, with the move to competition under the proposed rules, is that Ontario Power Generation will just directly increase its coal-fired production and sell more coal-fired electricity to the United States. If you look at their business plan which they filed with the financial regulator, they clearly state that one of their key objectives, as we move to competition, is to increase their market share in the United States and export more power to the United States. That's a very important component of their business strategy.

**Mr Parsons:** Do you envision them buying credits from the US, to increase—

**Mr Gibbons:** Oh, yes, that's part of the scheme. They will be buying credits. They will have the option of buying credits from the United States, yes. Now, just who they're going to buy it from, I don't know; you'd have to ask them. But they certainly will have the option of buying it from a company like a car manufacturer in West Virginia, for example.

**Mr Parsons:** The other thing I need to clarify is, for that car manufacturer in West Virginia, if they introduce something that reduces their pollution by 10%, they then

have a credit, but they could then increase production by 40% and therefore generate more pollution while at the same time having a credit to sell to OPG.

**Mr Gibbons:** Yes, that's the scheme. The fundamental flaw is that you're allowing trading with a company that isn't subject to a legally binding cap itself. That was the flaw that was identified by the government of Ontario's Market Design Committee, the blue-chip industry committee that recommended the rules for the competitive electricity market. They said trading should be limited to people who are subject to a cap, and they're absolutely right.

**Mr Bradley:** In terms of the conversion of power plants, it is said that the Lakeview generating station will be converted using, I think, existing boilers and existing equipment. In terms of emissions to the air, would it be superior to do a complete conversion, which has the cleanest-burning gas equipment possible?

**Mr Gibbons:** Oh, absolutely. If we went to a new, combined-cycle power plant, then we would reduce their smog-causing nitrogen oxide emissions and their greenhouse gas emissions by much more. That would be the best option. If we had a big, new combined-cycle natural gas power plant at Lakeview, that could help displace coal-fired generation from the Nanticoke power plant and that could provide potentially huge benefits.

**Mr Bradley:** Selective catalytic reduction, which is proposed by OPG on the Nanticoke plant, for instance, on not all the units but some of the units, would, as they point out, make reductions in some of the contaminants we're concerned about. Your allegation, however—your suggestion, your projection—would be that we would likely see much more output from the plant and that the 28 other contaminants would increase. Does selective catalytic reduction reduce any of the other 28 contaminants significantly?

**Mr Gibbons:** No. The selective catalytic reductions—OPG is planning to put those on two of the eight units at Nanticoke and they will reduce just the nitrogen oxide emissions, not any of the other 29 pollutants. What the SCRs will do is just reduce Nanticoke's total emissions by about four one-hundredths of one per cent.

**Mr Bradley:** If you were to project into the future—we use coal-fired plants largely, in Ontario, for peaking purposes, the hot summer days and the cold winter days—we may see a much greater use of those coal-fired plants than we normally would. In your assessment of the nuclear program, is there a reasonable chance that we would see further operational problems and therefore a need for a shutdown on a temporary basis, if not a full and complete basis, to fix the problems with the nuclear generating plants that we have now at the age they are today?

**Mr Gibbons:** I'm not an expert on nuclear generating stations, so I can't really tell you what the probability is that there will be further shutdowns. Sorry.

**Mr Bradley:** Mr Chairman, that would be a concern I would have because the nuclear plants have assumed a lot of the power we have in the province, that produced a



lot of the power. When they have operational problems, it forces Ontario Power Generation to go to other ways of producing electrical power. Again, I don't know if you were here when I said I'm not a fan of emissions trading. I know that even you believe there are opportunities where you can have it. In terms of the health of people and the natural surroundings, is not the best environmental benefit—and I understand we have to look at everything, and Mr Hastings I think appropriately asked the question about the cost, because that question has to be asked. But strictly in terms of—

**The Chair:** We're really going to have to move on. You've had well over the five minutes.

**Ms Churley:** Has he had extra time again?

**Interjection:** I don't think so.

**Mr Bradley:** Go ahead.

**The Chair:** We'll give a quick response and then we'll move on.

**Mr Gibbons:** Just remind me of the question. Oh, I remember the question now.

We believe that the best option is just to switch from coal to natural gas. That would directly give you huge emissions reductions in 30 pollutants and that's the best way to go to solve the problem.

**The Chair:** Thank you very much for taking time and coming before the committee. We appreciate it. Take care.

## ENVIRONMENT CANADA

**The Chair:** Now, with technology, if we can de-mute the far end and make contact.

**Mr Stephen McClellan:** Hello. Can you hear me?

**The Chair:** We're starting to hear you. We don't see you, though. We can see it looks like a lot of snow down there.

**Mr McClellan:** Well, it's Ottawa, you know.

**The Chair:** There. Now we can see you. Welcome. We look forward to your presentation. This is Stephen McClellan, I gather.

**Mr McClellan:** Yes, it is.

**The Chair:** You're addressing the select committee on alternative fuel sources here at Queen's Park. What we're struggling with is this whole area of emissions trading and how it might help promote the idea of alternate fuels/energy sources that may be used in the province down the road. So we look forward to your presentation. We have set aside a total of a half-hour for presentation and questions from the three parties.

1100

**Mr McClellan:** I think a couple of my colleagues were going to join me there. I don't know if they're there yet.

**The Chair:** Yes, they are. They're coming forward now. Maybe we'll just let them state their names into the record for the sake of Hansard and then we'll proceed.

**Mr Michael Goffin:** Michael Goffin. I'm director of Great Lakes and corporate affairs for Environment Canada.

**Ms Esther Bobet:** Esther Bobet. I'm with the environmental protection branch of Environment Canada.

**The Chair:** Welcome. Proceed, Mr McClellan.

**Mr McClellan:** First of all, my apologies for not being able to get down there. I had hoped to be face to face with you. I appreciate your setting this up, because this is actually very effective. I thought I'd tell you a bit about who I am for a minute or two and then get into my presentation, which I believe you have a hard copy of.

I am the director general of economic and regulatory affairs at Environment Canada. In simple terms, my function is that I'm the chief economist and my group basically is responsible for using economic thinking, economic analysis, to promote the agenda and mandate of the department in terms of dealing with environmental issues. One of the issues we get into a lot is the area of economic instruments and the use of the marketplace to help us advance our environmental goals, including emissions trading.

What I thought I'd do for you today is just give you a brief overview of emissions trading from our perspective and what it is and what it isn't, and leave you with a few comments in terms of our views on the extent to which emissions trading as an instrument can help promote greater penetration of alternative energy and renewable energy sources. It's a fairly high-level presentation, but I certainly would welcome comments afterwards or questions, and my colleagues there from the Ontario region are here as well to support me in any questions you might have, subsequently.

If you turn to the second slide in my presentation, I ask the question "What is emissions trading?" It's important to understand that it is very much a regulatory framework, combined with flexibility. It is certainly an economic instrument but it's also a regulatory instrument. You need both, it combines both, and I'll explain that in a moment.

There are really two basic forms of emissions trading, if you will. The one form is often referred to as "cap and trade," where essentially what you do is you cap total emissions of a particular pollutant for a covered sector or for a number of covered sectors. You then allocate permits that are equivalent in volume to the cap of emissions. You can allocate in a number of different ways: you can give them away in a gratis allocation using different kinds of formulae, or you can auction them, which generates revenues, or you can combine them—gratis and auction—for allocation of the permits. Then you basically allow trading among the sources in the capped sector so that they can basically take advantages of the trading tool to help achieve reductions in a cost-effective manner. So that's cap and trade. Again, there's a regulatory element, that's the emissions cap, and then the trading component provides the flexibility for achieving the cap.

The second basic form I refer to as a baseline and credit system, where essentially what you do is, for each source of emissions you establish a baseline against which you assess their performance or their emissions

level, and if their emissions are less than that baseline—and here I'm speaking of a regulated baseline—that creates the credit. So the extent to which emissions are below the baseline creates credits, and those credits can then be traded or they can be banked. So you have another commodity that you can trade like you would an allowance system under cap and trade, but these ones are called credits and they're created in a slightly different way.

Then finally, of course, you can combine the two into a hybrid form. For example, that's certainly one of the approaches that's being taken in the Kyoto Protocol, where we have allowances for Annex 1 countries for GHG emissions. We have access to credits outside the Annex 1 countries through the clean development mechanism. It's very much the system that is being put in place in Ontario as well. It's basically a cap-and-trade system, combined with a baseline and credit system outside the cap sector. You have two basic forms of emissions trading, but both of them rely on a regulatory framework to back them up.

I thought it would be useful, in the next slide, to talk a bit about why emissions trading is potentially a useful tool in the context of achieving environmental or, in your case, particular energy objectives. First of all, it very much provides a least-cost approach to achieving a particular target, or at least it can, because it basically uses the marketplace to help you find the least-cost reductions. It's very much a broad-based horizontal tool. What it essentially attempts to do is equalize the marginal costs of reductions across the various sources. What happens is, investors, or those who have to find reductions, seek out in the marketplace the cheapest places to reduce emissions, including in their own operations or outside their operations, and the trading provides them the means by which they can do that. As it turns out, emissions trading can also be an advantage for government, because it can provide for lower administrative costs. For example, a cap-and-trade system to achieve a particular objective would probably be significantly cheaper to administer than a best available technology type of regulation, which tends to be very, very targeted and require a fairly heavy administrative burden. So there are advantages for the government as well.

Having said that, it's important to understand that this is an instrument—it's not an end in itself; it's a means to an end—and it may not always be the best instrument for the job. For example, if you are looking to target a particular type of action in the economy, you may not get that action if you use a broad-based instrument like emissions trading, because emissions trading is not a targeted measure. It very much lets the market find the actions that are the cheapest. You may get it, but you may not. You can't be sure because, as I say, it's not targeting the particular action you're looking for. It may not always be appropriate from an environmental perspective either, because emissions trading is probably not appropriate for problems that have fairly local effects—where you want to reduce the local effects.

Emissions trading, on the other hand, may end up not producing the kinds of emission reductions in particular localities that you want. For example, for global warming and climate change, it's very suited to the task, because that's a global problem. If you reduce GHG emissions in Canada, it benefits the global environment as much as a GHG reduction in Thailand. So it depends on the type of environmental problem you're dealing with, whether or not emissions trading is appropriate.

The next slide talks briefly about some of the experiences we've had with emissions trading. It's probably safe to say that the US has had the most experience with various forms of emissions trading. The one that's the most often cited and talked about, of course, is the US SO<sub>2</sub> acid rain emissions trading program. That was a cap-and-trade system. It turns out it was a very effective system, both in terms of achieving the objectives of reducing emissions, as well as doing it in a way that was much less costly than anticipated, for both industry and government. So it turned out to be a very effective instrument in the US. There are also other examples in the US, and I've listed some of them there as well. There's also a fair amount of experience in the US with credit-type systems.

#### 1110

In Canada, I would argue there is fairly limited experience. There are a number of voluntary credit pilots: the pilot on trading and its successor, CACI, in Ontario in particular, as well as GERT, which is the pilot on emission reductions that focuses on greenhouse gas emission reductions. They're very much pilots and they're very much voluntary. They're sort of exploratory exercises in looking at how credit-based trading could work. They've been very successful in terms of learning about credit trading regimes, and there is a lot of interest in Canada in those pilots and in taking them further, but again, fairly limited in terms of their substantive application to issues like greenhouse gases or SO<sub>2</sub>.

The other point I would make on this is, notwithstanding the limited experience in Canada, we have not only those pilots that are making an important contribution to moving forward in using this tool, but we're also very actively studying emissions trading as part of our climate change strategy. There's been a great deal of analysis and discussion around various options for using emissions trading to achieve our Kyoto objectives.

The next slide is focusing on the Ontario regime. As I said earlier, I don't want to go into a lot of detail about what the regime is, partly because I'm not sure I could because it's a rather thick set of rules with respect to how the system will operate. But, generally speaking, it is, as I said, a hybrid system that is comprised of caps for the electricity sector on NO<sub>x</sub> and SO<sub>2</sub>. Then there are provisions for credit regimes outside the electricity sector. As I said, it is a hybrid system.

I know this is where your particular interest is: they have also a set-aside for NO<sub>x</sub> and SO<sub>2</sub> for qualified renewable and conservation projects. That set-aside is actually part of the overall cap for both NO<sub>x</sub> and SO<sub>2</sub>, so



to the extent that it isn't accessed by the electricity sector it's still a reduction that has to occur. So it's not like the credits outside the cap sector; it's part of the cap sector.

In that sense, there is a real incentive, and that leads me into the next slide, for those in the electricity sector to look for opportunities in those areas for emission reductions through investment in those renewable and conservation projects. So, certainly the set-aside will help promote these energy sources, and really the extent is simply a function of the costs of those reductions relative to the value of allowances, or relative to the costs of reducing emissions within the cap sector. So the extent to which they can find reductions in those projects that are lower-cost than trying to achieve them within the cap sector, they will seek out those opportunities and invest in them.

The second bullet is a caution that it may not be the most cost-effective approach, and this is really coming back to the point that emissions trading is not necessarily a good way of targeting particular actions in the economy. Its value is that it's a very broad-based horizontal instrument that allows the market to find the cheapest sources. The extent to which you try to use it to target particular investments tends to undermine some of its efficiency advantages as a broad-based tool.

Our view and experience has been that other tools tend to be a little better at targeting particular actions, such as targeted grant programs or expenditure programs, various types of tax incentives etc that can be used to target particular technologies or particular investments. Having said all that, of course, those two are not mutually exclusive, and indeed often we find that the two can be combined fairly effectively as well.

I'll leave it at that and certainly welcome any questions you might have.

**The Chair:** Thanks very much for an informative presentation. We'll start with the government side. We have about five minutes per caucus for questions and we'll begin with Mr O'Toole.

**Mr John O'Toole (Durham):** Thank you very much for your presentation. I just have a couple of questions. An earlier presenter, Jack Gibbons, was commenting, with respect to the federal government, that the minister might intervene if Ontario is not in compliance with the ozone annex agreement as it applies to coal. Clearly, the mandate of the Clean Air Alliance group is to get rid of the coal plants or coal generation.

My question really is pretty simple. From a federal perspective, if you look at Canada and the baseload across Canada, not just specifically Ontario, about 24% of Ontario's baseload is coal, versus Alberta, whose baseload is about 79% coal, and Saskatchewan is about 69% based on coal. I understand this is an Ontario agreement. I'm just wondering what measures the federal government is taking with respect to coal generation used in other jurisdictions in Canada. Do you have any view on that? It all comes down to economics. It all comes down to low-cost energy advantages, the economy, the sector as a cost of input.

**Mr McClellan:** I'll answer perhaps at a very general level. It may not be all that satisfying, and I certainly invite my colleagues in the region to add any details they might wish to add.

Generally speaking, the federal government is looking at the issue of coal, and not just coal but all energy production, in the context of climate change and all of its national environmental objectives, including clean air, from a national perspective. We are engaged with all of the other provinces where this is an issue, including Alberta, in looking at ways in which we can achieve our climate change and clean air objectives at the same time and looking at means by which we can promote clean coal technologies, as well as other means of promoting our objectives. We're certainly not singling out Ontario. Our view is, this is a national issue and we need to deal with it nationally. We're looking at all of the alternative tools that we have available to work with the provinces to achieve those objectives.

I don't know if any of my colleagues from the Ontario region want to add anything to that.

**Ms Bobet:** The only thing I would have to add is that under the Canada-wide standards activities that both the federal government and the provinces are engaged in, there is a multi-pollutant emissions reduction strategy that is being developed for the electric power generation sector. That is one area of that activity that's joint federal-provincial. That's being looked at for the sector in a broader range in terms of a number of pollutants coming from that sector. I don't know if it's focusing specifically on coal, but it's looking at the sector in general.

**Mr O'Toole:** The point I'm trying to make is, Ontario's baseload is pretty much nuclear, and when you compare it to our economy and our contribution to Canada, we're about 50% of the economy of Canada and as such would be disproportionately penalized by any short-term interruption in the infrastructure of that industrial sector, ie, power.

Are you confident that you see the marketplace opening and competition, the importance of having some kind of emissions trading system? I don't disagree with that argument at all, but allow them time to make appropriate investments or incentives for alternative forms, other kinds of tax tools to give Ontario time to really, let's face it, deal with this issue. We've got this capacity, about 24% tied up in coal. Those are assets worth \$5 billion to \$8 billion and we can't just write them off. It's that simple. Who's going to pay it? When they say the cost is going to be two cents a kilowatt—that is what Mr Gibbons said—I don't think that accounts for the debt you're creating. Just writing off assets and other strategies to get cleaner coal plants doesn't seem to be on, or any other alternatives; to allow them over 10 years to not just write off these assets. This is a basic economic argument.

1120

**The Chair:** The five minutes are up. If we could just have a quick response, please go ahead.

**Mr McClellan:** I think you've hit a very important issue, one that is very much at the centre of discussions on any of the air emission issues we're looking at, including climate change. The electricity sector does have huge assets, and we're certainly looking at ways in which we can meet those objectives, working with the provinces and the industry to ensure we're not writing those assets off. We're looking at it from the point of view of, how do we make the transition from where we are now to where we need to be, given the technologies we have and the technologies we could have?

**The Chair:** We'll move on now to the official opinion.

**Mr Bradley:** The first question I ask deals with one of the points you made in your presentation to us, and that is the effectiveness of pollution trading—I don't call it emissions trading, but pollution trading—in terms of local problems and in terms of smog. Would it be fair to say that in dealing with issues of smog, the trading of pollution credits is much less effective than it is in terms of dealing with the issue of global warming?

**Mr McClellan:** It's more difficult to design the system to take into account the need for dealing with the local impacts of those emissions. For example, with climate change you can basically design an emissions-trading regime around GHG emissions globally, whereas for smog what you may end up having to do is look at regional bubbles. In other words, you can establish, within a total cap for a sector, three or four regional bubbles within which you restrict emissions and allow trading within those bubbles. I think you've seen some of that discussion come out in some of the reaction to the Ontario proposal, particularly on the credit side, where we're looking at transboundary trading and whatnot. So it's more problematic in terms of the design, but it can nonetheless be more efficient than traditional, more hands-on regulatory controls, where you do source-by-source controls.

**Mr Bradley:** You have to deal with the United States, and Mr O'Toole, I think, brought a point forward in terms of dealing with other provinces. If the people of Ontario are going to feel the heavy hand of the federal government, as I think they should if the provincial government does not move appropriately, it would be of great advantage to know, at least for the people of Ontario, that the same heavy hand is being applied elsewhere in the country.

You were a bit vague in your answer to Mr O'Toole. What specifically are you going to require of, say, Alberta or Saskatchewan that you would be requiring of Ontario? In other words, are you requiring the same reductions, the same regime, as you would in Ontario?

**Mr McClellan:** I guess the reason I'm vague is because we haven't made any decisions and we're still in the process of working with the provinces and stakeholders, both on climate change and clean air, to try to find a way in which we can address our objectives on those two fronts. So the reason I'm vague is because we haven't put in place, or made any decisions on, specifics.

I think it's fair to say that we're going to find a national solution through those processes.

**Mr Bradley:** Do you have a concern that when you reduce NO<sub>x</sub> and SO<sub>2</sub> in coal-fired plants, it allows coal-fired plants then to be utilized more and to burn more coal, and therefore to produce the 28 other contaminants that come from coal-fired plants? Are you concerned that those other contaminants, the 28 other contaminants, are going to increase significantly if the coal-fired plants are going to be allowed to be stoked up more frequently and perhaps more extensively as a result of reductions of SO<sub>2</sub> and NO<sub>x</sub>?

**Mr McClellan:** Maybe I'll let you take the lead on that on Ontario, since you guys are more into the details of where we are on the Canada-wide standards in Ontario.

**Ms Bobet:** I suppose I could just reiterate that we do have concerns about all of the pollutants that come out of coal-fired power plants. In that context we do have the multi-pollutant emission reduction strategy, or MERS, under the Canada-wide standards for the electric power generation sector, wherein the federal government and the provinces are working together to address all of the pollutants, not just NO<sub>x</sub> and SO<sub>2</sub>.

**The Chair:** We're getting down to about 15 seconds, if you want any windup comments or a short one.

**Mr Bradley:** You were very generous previously, so I'll pass.

**Ms Churley:** Yes, perhaps I can make up for my last time here. I'm Marilyn Churley, the NDP environment critic.

I just wanted to ask—you understand, I believe, the purpose of this committee is to look at ways, not just in one area but, overall, finding alternative fuels, and ways to reduce energy consumption has become part of the mandate. I guess my question would be around that. You mentioned that you see emissions trading, if it's done right, as one part of a multi-faceted approach. I'm just wondering if you have any expertise in this area of looking at a whole multitude of approaches including, say, energy efficiency and conservation, just using far less power to begin with in a combination of a lot of different programs, including bringing on more green energy.

In that context, when we're looking at—as you mentioned and as I mentioned earlier to a previous deputant—the problem between increasing local pollution, which is a big problem for those of us who have pollution in our jurisdictions, and wanting to find programs that reduce overall emissions, would you see this as just one part of a multi-faceted approach?

**Mr McClellan:** I guess our view is that what you do is you need to have clear in your mind what your environmental objectives are and what your broader objectives are. Then you take a look at the suite of tools you have available and make the most use out of them. I think our experience in Canada, frankly, to date has been that we tend to fall back on the traditional regulatory approach and are very suspicious of market-based



approaches. I think we need to look harder at using those, because I think they can in some circumstances be more effective and we haven't given them full credit for their possibilities.

That's why we in Environment Canada are looking very closely at these issues in the context of our mandate and our program. I think other provinces and other jurisdictions are beginning to look as well, because these are economic issues as well, and the extent to which we can find much more cost-effective ways of achieving our objectives obviously helps the economic bottom line as well.

**Ms Churley:** Could you see the program here in Ontario as it exists now, though, the emissions trading, or as Mr Bradley says, pollution trading, being able to work economically should we take the recommendation that requires that there be a reduction in total annual emissions? That, as you know, is not part of the plan here in Ontario, which is a real problem, but I believe the concern around going in that direction is for economic reasons.

**Mr McClellan:** I think you've raised an interesting issue and it points to the obvious difficulties of a program that has a cap on sectors but then creates a baseline or a credit regime outside the integrity. From an environmental perspective of that kind of approach, it is fundamentally dependent on how rigorous that baseline and credit regime is. So if you're using it to offset potential economic impacts, that's a fair objective, but on the other hand the trade-off is that you may well be undermining your environmental objectives because you may end up not achieving the cap that you set for yourself. That's why I say I think it's important to set at the outset: what is your environmental objective that you want to achieve? Have the discussion around what the implications of achieving that are and how you can mitigate that, and then decide on the tools to get there.

But I take your point. It is a trade-off that you're entering into in either case in some situations.

1130

**Ms Churley:** You weren't able to give a definitive answer to questions around how the federal government would penalize, or whatever, provinces that don't meet their commitments to the US. Do you have any time frame or deadline? Does the government have any deadline, or the minister, as to when that could happen if provinces aren't complying and aren't meeting the standards, the agreement?

**Mr McClellan:** I'm sorry. I'm not too familiar with any of the timetables that are in the ozone annex itself. I don't know if anyone else is.

**Ms Churley:** We're just curious here if Ontario, for instance, has been given a deadline to meet that.

**Ms Bobet:** Under the ozone annex, the cap for NO<sub>2</sub> for the electricity sector of 39 kilotonnes must be met in 2007.

**Ms Churley:** In 2007, OK.

**The Chair:** Thank you very much. The time's up. We appreciate your presentation and your taking your time,

both being here at Queen's Park as well as from Ottawa. Technology does work and it's great to have you with us long-distance. Take care and have a good day.

## COMMITTEE BUSINESS

**The Chair:** We just have the three presenters for this morning, but the committee does have a couple of other items that I would like to get tidied up so that committee members know where we're headed for down the road, particularly after Christmas. We also have a communications plan that has been faxed I believe to each office. We have a copy here and, if committee members are comfortable, it would be nice to have it approved as a communications plan for the committee and then we can move down the road with that, particularly in view of the fact that, as I understand where we're at with our interim report, it's in the process of being translated and will be presented to the Legislature next week, either Tuesday or Wednesday. So having a communications plan in place for that would be helpful.

Are there any comments on the communications plan as has been distributed by Ms Grannum? Anybody uncomfortable? Would anybody like to make suggestions?

**Ms Churley:** I'm going to admit in front of a TV camera that I did not have the opportunity, although I brought my copy with me, to study it in great detail. You know me; I don't want to pass it until I have a very quick look at it. So perhaps there are other members who have something to say. Give me a moment to look at this.

**The Chair:** It's along the lines of a basic communications plan adapted for this committee. Anyone else? Any comments? Any thoughts?

**Ms Churley:** In looking through it, it seems a pretty extensive communications plan for this committee. While I agree we should make every effort to publicize our work and what we're doing, I'm just not sure that—in a quick read of this, is the plan to try to achieve all of these things? If somebody could—

**The Chair:** These are all thoughts and directions that we can—

**Ms Churley:** These are all thoughts and directions that we can simply choose from and—

**The Chair:** —take advantage of. You may want to read the four strategies to get a feeling.

**Ms Churley:** The four strategies.

**The Chair:** Under "Communication Strategies" there are four that might be helpful, and then it is suggested, how far do we want to go with this as far as a budget? Do we want to look at clippings and that kind of thing? Are you comfortable with what's flowing in?

**Mr Bradley:** I'm comfortable with the way it is working at the present time. I see the main purpose of communication for me, as a committee member, and I can't speak for my colleagues, who are at a caucus meeting at this moment, but I look upon it as gathering information for us. The communication is out there so that people know what we're doing and can have input, as opposed to the committee engaging in extensive

communications itself. That would be my preference. I've certainly been pleased that people have heard about what we're doing and therefore have come forward to make presentations. I don't think we need a media extravaganza to tell the public what the committee is doing. Rather, I think the purpose should be to gather input from others. I think we should treat it as routinely as we would another committee, even though it's an important committee—another select committee. There is no need for an extensive budget for these purposes.

**Ms Churley:** Thank you for the opportunity to take another look at this.

I have to comment on strategy to create excitement regarding the launch of the interim and final reports. As good as the interim report is, I would say to our researchers that we're not making any recommendations in that report. It's just a summary of what we've seen and heard here. I wish us all good luck in generating a lot of excitement around that interim report, which of course didn't do what I'd hoped, and that is to make some initial short-term recommendations. It is simply a report of what we've heard to date, almost verbatim, organized in a certain way. Hopefully, the final report will be able to generate some excitement, because we will be giving recommendations, hopefully, with timelines attached to those.

Budget to be determined, and I take it we'll look at that on another occasion. I would just say right now that the idea of having a feature writer hired would not be within the realm of need for this committee. I guess I should be quite straightforward here, and I'm talking around it.

I don't want this to turn into a propaganda machine for the government. It's a good committee, and we're doing some very good work here. But my goals are to get this work done as quickly and as efficiently as we can, with public buy-in, of course, so that we can make the recommendations and actually get this stuff happening. That's my major goal here. I certainly agree that within that there's a need to publicize what we're doing and have the public involved to the extent we can in this sort of thing, which often tends to be very technical. The idea that we're going to be doing media hits left, right and centre, all over the place, and having a feature writer, I don't support that. I think that's far-fetched.

**Mr O'Toole:** I don't have a problem. There are in the four objectives here—I think it's important to engage the public, however that happens. If there were media, I don't think it should be a large budget, in any respect, but some courtesy things to engage the public and steer them toward a Web site that has the draft report and some reference points in it would certainly be appropriate for those sectors and individuals who want to engage in the process, because there is a lot of information and there are choices to be made. I think that's really all this committee's done.

As far as the initial criteria here of raising the committee's profile, that's not particularly that important. To inform the public about the activities—I think by

making some effort to do it, it's good public awareness. It's part of our role. Having the meetings here, and they can be carried, I suppose that's important. I do feel we have a responsibility to educate the public about choices, as the market opens, no question about it. Part of that will engage them in other little branches of the energy debate—about choices, when they see their bill, and they see that it's going to cost a certain amount for these decisions. We have a responsibility to do that. I think it will be a very important reference point, politically or otherwise, when the market opens. I really think people will be looking for more information about the future vision or planning line for governments.

So no big money. If we are doing something, I think we should do it for the public interest: we should be steering them to a pretty well-maintained Web site.

**1140**

**Mr Hastings:** Following up on Mr O'Toole's comments, what is the status of the Web site? Have you got anything going yet?

**Clerk of the Committee (Ms Tonia Grannum):** Yes, the Web site is up and running. People can find out about our agenda and find out about the meetings. There are links to Hansard. As soon as the interim report is tabled, it will be posted on the Web site. A lot of people do call my office—

**Mr Hastings:** That's [www.html](http://www.html) and on and on?

**Clerk of the Committee:** They can go in through the Ontario Legislative Assembly Web site and hit the links for committee and see the [altfuels](http://altfuels) committee.

**Mr O'Toole:** We don't have a stand-alone piece? You have to go through the great big barrage?

**Clerk of the Committee:** Yes.

**Mr O'Toole:** I'd like something a lot more independent than that.

**Mr Hastings:** Could we look at what the costs would be to create it?

**Mr O'Toole:** I have one, so it can't be that expensive.

**Mr Hastings:** [Alternative.fuels.org](http://Alternative.fuels.org) or something.

**Mr O'Toole:** High school students do that.

**Mr Hastings:** That's my first comment.

**Clerk of the Committee:** I think Bob Gardner has a comment.

**The Chair:** Do you want to comment, Mr Gardner?

**Dr Bob Gardner:** Where we might run into trouble is that there is a sort of broader assembly policy. I think the assembly as a whole has a policy of a coherent and organized Web site and a committee having one on its own would need some arguing with the powers that be. You can make that argument.

**Mr O'Toole:** How about the Red Tape Commission?

**Dr Gardner:** It's not legislative. Having said that, what we can do, to speak to your point, Mr Hastings, is have a look at the design of it so that it's a little bit more front and centre. We can, as part of this communications plan, promote the Web site, so we can come back and look at those kinds of things.

The other issue that we'll return to is, there was some talk in the early days of the committee of using Internet



capabilities to do some interactive forums and some electric town halls and so on. That will require some specialized expertise that we'll need advice on, but all of that is doable. As the committee determines what its next steps early in the new year are, we can come back to you with some proposals on how to use those resources.

**Mr O'Toole:** How about having a link from our own Web site? All you have to do is put a button there.

**Dr Gardner:** You mean from each member's Web site?

**Mr O'Toole:** Yes, from each member's.

**Dr Gardner:** Certainly; easy.

**Mr O'Toole:** You talked about heightening the profile of the members. Without bias here—that's not my point—my point is we are seen as entry points. Marilyn, you're well known. It would be nice if people felt, fine, you're on the thing, here's where to get the stuff, right on your Web site or however you're linked.

**Dr Gardner:** Sure.

**Mr O'Toole:** That would be worth spending \$20 on.

**Dr Gardner:** There's no money involved in that at all. We'll send the URL by e-mail to all members of the committee. What you link to is your own business, but that's an excellent communications strategy, a great idea.

**The Chair:** Mr Hastings—oh, sorry.

**Mr Bradley:** I'll let Mr Hastings continue. He was still going on his point, I think.

**Mr Hastings:** That's reassuring and I'm glad to see we're starting to move in that area. I take a little bit of a different view regarding the feature writer, and I think I see why research has suggested it. It may be that if you're going to do some more broad-based Internet stuff, you need a qualified writer on a project basis to look at some of those issues, to write it up in such a way that it's understandable, non-propagandistic for the general public.

One of the key areas I think we should not miss is the younger generation who are Internet-communications-oriented. They get most of their information off the Internet and they do it quickly. Print is only what they take in school. I think we need to make sure we're capturing some of that market of the G generation, or whatever name you want to put to it. I think we need to make that effort, and that's why possibly Bob has suggested that. At least that's what I surmise.

If you don't want to do a feature writer approach, perhaps what we should look at is—and I've reiterated this before and I know maybe the assembly has a problem with the policy—we have interns here who work with the various political parties throughout a year, 10 or so; we've had them for a decade-plus. What would be wrong with attempting to get some co-op students from high school in the greater Toronto region or even from the members' ridings to come in for one or two weeks, if they were not non-Toronto-based, to look at that situation too?

I've used co-op students for many, many years and I find them extremely helpful. I think some other members have used them too in terms of giving them situations

where they can meet the public. Possibly, in the writing phase of your feature writer, then, we could get somebody from a writing course at one of the high schools or community colleges. I'll put in a plug for Humber. They have a school of writing. I know it's more fiction-oriented than anything, but if you want to be that creative, maybe Bob could come back with some more specifics on that.

Finally, I'm trying to grapple with the channel. We have, what, five channels here, Tonia, when you count the French, when you go from 51 or 52 through to 57? This is probably not Assembly policy either: should we look at having—until whenever the report is finished or at some phased enterprise of the select committee—a channel that really promotes what we're doing? Maybe you have to go back to the powers that be to find out.

I go through those channels and I see most of them—if you're up at midnight; I'm a night person—are blank or they've got the news announcement of what's coming on. I'm wondering to what extent we can get greater utilization out of one of the five channels for discussion of what we're doing in this committee.

Those are my suggestions.

**The Chair:** I'll respond to the first one and Tonia would like to respond to the second. It has to do with the source of the communications plan. You may remember that we've talked about it earlier, and it was suggested that we look to some of the communications people in the Ministry of the Environment. They were uncomfortable with doing anything with it. They did not feel it was in their place, so it was between Tonia's and my office to put this package together so that you'd know where the source is. It's not from the researchers. They tried to do it in as neutral a way as possible. It may be a little overboard with enthusiasm.

**Clerk of the Committee:** With respect to the TV channel, the parliamentary channel does display the ads, and we could put on anything we wish to promote our committee. But what happens is that when the House is sitting it's not on, and when the House isn't sitting, then it scrolls through, and when they go to the news, then it's not on. A lot of people find out about what the committees are doing by looking at OntParl because the ads are up. We could do any report or script that we want.

**Mr O'Toole:** Put the report on there. You can easily videotape that. I sit there and listen to it. There's an all-news channel that's all print and verbal.

**Clerk of the Committee:** OK, that's a different channel. That's not OntParl. But sure, we could look, if the committee wishes—

**Mr Hastings:** A final suggestion, Mr Chairman: the report talks about certain media, and the CBC's Quirks and Quarks is probably one of the best science sources or maybe the only science source we have in the country. Maybe we should make some contact with whoever the new host is. I don't listen to it frequently but sometimes I do, and they have some good material on there. Maybe there's an opportunity. It used to be Jay somebody; I can't remember.

**Mr Bradley:** Jay Ingram.

**Mr Hastings:** Yes. I don't think he's there any more.

**Mr Bradley:** It's Bob McDonald now.

**Mr Hastings:** Right. I think it's an excellent program for non-propagandistic—

**Mr O'Toole:** I just thought—quickly, if I may interrupt. It's rather unpleasant, but perhaps we could send pictures from Australia. John is going to be there, so he could—

**Ms Churley:** You're going to Australia?

**The Chair:** You approved it.

**Ms Churley:** I did?

**The Chair:** Yes.

**Mr Bradley:** We'll just ask Mr Hastings to at least send postcards to us from Australia when he's there.

Just a quick shot at this: strategy three and strategy four are what appealed to me the most out of the strategies. I'll leave it at that.

**The Chair:** OK. I gathered from the good discussion that one and two are low-priority, three and four are the—

**Clerk of the Committee:** Which group are we doing right now?

**The Chair:** The strategies.

**Clerk of the Committee:** Yes. Three and four we're already covering.

*Interjection.*

**The Chair:** OK. Anyway, some thoughts before the committee on communications.

I don't think it's something we need to have formally approved. It's just to give some general direction. The other thing: I think there was concern about the week of travel that we had originally tentatively set aside, and also to go and check with the clerk where we're at with looking at getting out there.

1150

**Clerk of the Committee:** No. Actually, we haven't looked any further yet.

**The Chair:** I believe it was Mr Ouellette who had a concern that I heard by rumour of the travel week.

**Ms Churley:** What week were we looking at? Can you remind us?

**The Chair:** January 28.

**Ms Churley:** And you're saying there's one member who has a concern with that week but that member isn't here to confirm that.

**The Chair:** Yes.

**Ms Churley:** So what do you suggest? That we wait until our next meeting to finalize the travel week?

**The Chair:** We could do that. It was only by rumour that I heard there was a problem. I didn't get it directly in writing or verbally, but I just thought I should bring it up here to try and ensure that we had as many people as possible to travel with us.

**Ms Churley:** Are you suggesting, then, because one of the committee members might not be able to make it, that we find—

**Mr O'Toole:** That's too bad.

**Ms Churley:** No, I think we should try to have everybody come, and we're not wedded to that week. I would suggest, then, given that he was here but he had to leave, that you check with him and revisit it and we'll determine the date at the next meeting. I hope we can find a week where every committee member is available.

**The Chair:** I guess there's no reason why it couldn't be moved down a week and one of the public hearings moved up to that week. I believe the subcommittee of the finance and economic affairs committee recently met to make their plans, and that creates a problem for some of us.

Mr Hardeman, I believe you're on that subcommittee. Maybe you'll share some insight with us.

**Mr Hardeman:** The subcommittee met yesterday and we're meeting again I believe tomorrow. We weren't able to finalize dates that would be appropriate for all the committee members because we will be doing the pre-budget consultation with discussions around the province. I'd hoped that by your next meeting we'd be able to clarify.

**The Chair:** Did you have our schedule in front of you?

**Mr Hardeman:** In fact, Mr Chairman, I would get that information as soon as it's available and get it to your office to make sure you can work it within the schedule here.

**Ms Churley:** Can I move, then, that we leave until the next meeting the scheduling of our travel and hearings? I understand the two go together. Hopefully, we will have all the information about other committees and we can schedule it at the next meeting.

**The Chair:** OK. We may have a full two hours and therefore it might take five, 10 minutes into the noon hour. Is that in order for you?

**Ms Churley:** Yes. We obviously can't decide it today, so that just seems to make the most sense.

**The Chair:** We're moving along. This is the end of November. We're looking at two months down the road. Should we be asking research or staff to be doing some checking on what we would want to be visiting?

**Mr O'Toole:** We may need a sub when we're travelling on a committee. Mr Hardeman has done a tremendous amount of work. Perhaps, in the event that somebody wasn't able to make it to one of the morning meetings, we'd already have a sub there.

**The Chair:** That week is an all-or-nothing week.

**Mr Hardeman:** Mr Chairman, I just wanted to make sure we clarified that. In no way did I insinuate that any committee member would not be able to make the meetings they were proposed to attend. My question related strictly to, that if the committee actively pursued that every committee member can make the meetings we will hold on the road, I have some concern that those of us who from time to time get to sub on the committee will never see the opportunity to be on the road with the committee.

**The Chair:** This committee is operated on a premise to make it as workable for as many members as at all possible. It would be a little difficult to substitute on the



road on this particular week, but we appreciate your comments.

**Mr Hardeman:** Thank you very much, Mr Chair.

**Ms Churley:** So then we're going to have the researchers look into some of the sites we might want to visit, and that would be based on the criteria of those areas we identified as our priorities?

**The Chair:** There may be a week or two that's not good to be travelling as it relates to where we're going.

**Ms Churley:** Absolutely. I think Jerry had a comment.

*Interjection.*

**The Chair:** Yes. He was just checking with me if our thinking was basically Alberta, BC and California.

**Ms Churley:** So you will then check those dates and we'll try to coordinate—

**The Chair:** Start making some contacts.

**Ms Churley:** Yes—times that were available with visits to those sites. OK.

**The Chair:** I guess the other is to start planning and to let people know the weeks that we are going to have hearings. Between Tonia and me, we've received a tremendous number of letters from different organizations. I think, in fairness to all of those, we need to accumulate a file of addresses so we can inform them of the hearings and if they would like to present.

If there's nothing further, committee adjourned.

*The committee adjourned at 1156.*

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### SELECT COMMITTEE ON ALTERNATIVE FUEL SOURCES

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## Legislative Assembly of Ontario

Second Session, 37<sup>th</sup> Parliament

## Assemblée législative de l'Ontario

Deuxième session, 37<sup>e</sup> législature

# Official Report of Debates (Hansard)

Wednesday 28 November 2001

# Journal des débats (Hansard)

Mercredi 28 novembre 2001

Select committee on  
alternative fuel sources

Comité spécial des sources  
de carburants de remplacement



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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Wednesday 28 November 2001

Mercredi 28 novembre 2001

*The committee met at 1001 in room 151.*

**The Chair (Mr Doug Galt):** I call the select committee on alternative fuel sources to order. We have three delegations this morning. Two of the ministries have indicated that they are not prepared to present. These memos and letters have been distributed, one from the Ministry of Training, Colleges and Universities and the other one from the Ministry of Municipal Affairs and Housing.

We have three ministries prepared to present this morning: the Ministry of Finance, the Ministry of Economic Development and Trade and Management Board of Cabinet.

To begin with, we've allocated 20 minutes per presentation. In view of the fact that we do have two hours, would the committee be interested in giving each a half-hour if more time is needed, or would you like to keep it at the 20 minutes, as originally agreed to? Any thoughts?

**Mr Ernie Hardeman (Oxford):** Mr Chairman, I have no problem with giving extra time if that's required.

**The Chair:** Great.

## MINISTRY OF FINANCE

**The Chair:** Maybe we can call our first delegation forward from the Ministry of Finance. You're all by yourself this morning?

**Mr John Pringle:** I have some colleagues with me.

**The Chair:** Would they like to join you at the table? We have room for up to four there. Maybe to start with, if you don't mind, just state your name for the sake of Hansard and begin.

**Mr Pringle:** I'm John Pringle from the Ministry of Finance property tax policy branch—my colleagues Murray Mann and Agnes Krzemien, and we also have Len Koskitalo from OEP.

I was planning to do a very quick briefing with an overview of property taxes, property tax reform—that will go quite quickly; I'm sure a lot of people are familiar with that—and then talk a bit about what we have done for various energy or fuel-related properties since 1998.

The first page is just a background on the property tax reforms that have been ongoing since 1998, the goals of that, to put this into context. Basically, the province is committed to ensuring that the system is updated and fair, and there are several goals to meet this commitment.

Establish updated assessments: I'm sure everyone is familiar that we now have current-value assessment. There was a reassessment in 2001, there was the first in 1998, and these are province-wide reassessments.

We also wanted to provide businesses with a level playing field on which to compete and to ensure the new system is understandable and accountable for taxpayers. An example is, because the assessments are all on the same years, people can compare their property values, not only within municipalities but across municipalities.

We also wanted to give municipalities the autonomy and flexibility to respond to local needs. There are a number of tools that they have at their option to provide that function.

Also, finally, establish mechanisms to ensure the transition to the new system is manageable: some of these are mandatory across the province, such as the 5% limit on business properties; others are at the option of the municipalities.

Turning more to, and to start off considering, property taxes and their effects on energy-related properties, I thought it would be good to talk for a few seconds on the property tax liability. Basically for each particular property the property tax liability is based on, as I mentioned, current-value assessment, and by 2003 that will be updated annually. The assessment is generally based on land value and improvements, including buildings and other structures, but excluding machinery and equipment.

The community where the property is located: both the commercial and industrial property classes have different rates by upper- and single-tier municipality. So it will depend on that; also the classification of the property, whether it is residential, commercial, industrial, multi-residential etc. That will determine which municipal and education rates are applied in that upper- or single-tier municipality. It's also, as I'm sure everyone is somewhat familiar with, some of the mitigation tools as the properties move to CVA, particularly the business properties with the 5% limit that is bringing them up there gradually and making the update of the whole system more manageable and certain for businesses.

Turning now to page 3, which is more in line with what we came to talk about, basically an overview of property taxes and energy-related properties: first of all, property taxes are not applied to fuels; they're not considered land and improvements. However, property taxes do play an important component of the production

and distribution. There are several types of properties we'll be discussing in terms of production facilities, and I would note that they're generally taxed at the industrial rates. Industrial rates tend to be higher than the commercial rates and other class rates. This has to do with coming out of the previous system where there is a business occupancy tax, and the industrial component was taxed at a higher rate for the business occupant.

Facilities that we'll be looking at and you may be aware of: we made a move starting in 2001 to provide different treatment for hydroelectric generating facilities. We'll talk about that. We'll talk briefly about wind power—I know there may be further questions on that—and also talk about non-hydraulic generating stations.

In terms of distribution, we'll take a quick look at hydro rights of way and pipelines and, if you want, transformer stations; I'm not sure they're of as much interest to you.

Perhaps the biggest move we've made occurred this year in terms of something new to promote clean air alternative fuel use, and that was the new gross revenue charge on hydroelectric generation. As I mentioned, that starts this year. It will promote the use of sustainable energy to help improve air quality. The new GRC replaces the past property taxes and provincial water power rental charges. I could leave with you the press release that has more details on this, but I will go through it very quickly. If you want to stop at any point and ask questions or do that afterwards, I'm perfectly comfortable.

Basically, the GRC is based on the gross revenue of each facility, power dam. It has graduated property tax rates for the property tax component and a flat rate for the water power component. The graduation helps to ensure that the smaller sites that might not otherwise be developed are given an impetus to be developed and to maintain the existing sites in the province. It really is twofold.

The second component of this was a 10-year holiday for rebuilt, redeveloped or expanded hydroelectric properties. There's also a continuation of the 10-year holiday for water power rentals. Some dams, when they were built, did get such holidays, but it was not certain. They would have to go through and request it. We've made that more certain.

#### 1010

The other thing is, by basing the taxes on the gross revenue, it takes away some of the risk for the owners and developers of the power dams. If it's a low year in terms of water flow, the taxes are lower. It's more responsive than the previous property tax system, which was difficult, because with structures like these, basically, all the value is in the site and structure. There's some in the turbines, but some of these sites have massive dams associated with them. They attracted very high property taxes because of the nature of the site and the dam, and the government felt it would be more appropriate to move to this system, which did save—our original estimate was about \$44 million in total in tax

savings on an annual basis. That will vary with production and, obviously, the prices of electricity.

I move now to wind power generation. Ontario currently has two wind power generating facilities. One was recently built. Another one was, perhaps, an experimental station near Kincardine. Under the current system, the property assessment applied to wind generating systems would be based on the following guidelines: the towers and foundations would be assessed using the cost approach, based on replacement cost less depreciation. The land component would be assessed using industrial land tables. The whole facility would be considered in the industrial class because it is producing, as are all the other generations. As I mentioned, the industrial class attracts some of the higher rates, although the province is bringing down the education rates. Where they're above the provincial average, that seven-year tax cut is being implemented, and that would be helping.

For non-hydraulic generating stations, if they're owned by private producers, they're basically assessed at full current market value based on replacement cost. As mentioned, it's an industrial rate for both the education and municipal taxes. I would note that they would be subject to the 5% limit on increases due to reassessment, ie, they would be protected, or any changes due to reassessment would be made more manageable through the protection system that is mandatory across the province.

It's significantly more complicated in terms of the generating stations owned by Ontario Power Generation, Hydro One or MEUs. MEUs do have a few, I believe. I'm not sure. I know they have power dams. We have met with them about that. Basically, the land is assessed, and the tax, at the industrial rates. The buildings, for municipal purposes, are taxed at a rate of \$86.11 per square metre of inside ground area. That is what is put on the roll as return. That's what the municipality uses to tax. When we levelled the playing field with the privates, there was a gap there. That was a PIL, and that was less than what the current value would be. The remainder of that, ie, the remainder of the value of the building, goes to stranded debt. So the owner, whether it's OPG, Hydro One, or an MEU, is actually paying a comparable amount to the private, but part of that money is flowed to the government for stranded debt.

In terms of hydro rights of way and pipelines, bearing in mind that reassessments are becoming annual, with different methods in place prior to this, we needed to consider both the unique nature of these properties and, as I mentioned, the treatment before property tax reform. For one thing, they were not subject to business occupancy taxes, which the tenant of a property or the occupant would pay, so they paid lower amounts in 1997 than other properties. In 1998, we did away with the business occupancy tax. That was incorporated into the rate structure for the current system, to be applied to the current value. So there is a need to protect them.

We did this for hydro rights of way. The rights of way are subject to per-acre taxes. Basically, we divided it into nine geographic areas. We provided uniform rates and



provided an eight-year phase-in, where there were different rates in the municipalities. They are moving to those uniform rates by company. The same type of system is used for railway rights of way.

In terms of pipelines, to ensure that the tax burden did not increase through the reforms, they were put in a separate property class. What's called transition ratios for municipalities, ie, how much their taxes could be, relative to the residential, were determined based on their 1997 tax burden. They were also given education taxes based on their 1997 tax burden. So it was a form of protection from removing the business occupancy tax.

The move also for rights of way: they had been assessed based on abutting land values. That was difficult. They're long, narrow corridors. They're not necessarily as valuable as the adjoining, the abutting, properties which are developed for industrial or whatever purposes. So I believe this is a much fairer system for them and provides them with greater certainty.

Transformer stations: I'll just say very quickly that they're similar to the treatment of the non-hydraulic generating stations in that the transformer components are assessed at \$86.11. That goes on the roll, plus the land value, and the difference goes to stranded debt.

That ends the formal presentation. We're certainly happy to entertain questions.

**The Chair:** We have approximately 15 minutes remaining, so maybe we'll divide it among the three caucuses, starting with the Liberal caucus.

**Mrs Marie Bountrogianni (Hamilton Mountain):** Is there any consideration for a tax holiday for future private wind farms, similar to hydro? For example, in Europe they have anywhere between five- to 15-year tax holidays.

**Mr Pringle:** That has not been brought forward to us. We could certainly take it into consideration. I know the wind industry has met with our deputy and made quite a number of recommendations. I'm not sure that a holiday was one of those recommendations. There are some of the same people on the wind industry that we met with on the water power task force. With the water power, one of the unique features is, because of the significant investment at the start, that it takes at least 20 years before they make any money, so the upfront costs are extremely important to them. But we could certainly review that.

**Ms Marilyn Churley (Toronto-Danforth):** If I still have a voice, I'll ask you questions. You are more specifically talking about property taxes. I don't know if you have anybody here with expertise in some of the other areas around economic instruments to help get alternative green power into the market. As you know, there are some specific problems they are facing right now. For instance, you mentioned the stranded debt and the issue around green energy, the alternative energy. Renewables coming on stream are asking the Ministry of Finance to lower the threshold for them. I don't know if you know about this issue, but it's critical to be able to come on stream.

**Mr Pringle:** I have been somewhat involved in the Hydro restructuring. I'm not sure, Len, if you feel that we should get back to them.

**Mr Len Koskitalo:** I think that would be more appropriate, because the people who are more familiar with that issue are part of what we call the electricity restructuring secretariat.

**1020**

**Ms Churley:** I appreciate your presentation. It's good to have all the information. There are some things about property taxes related to this issue that I didn't know, and they're good to have. But I have some specific questions that I asked of officials from the Ministry of Finance on the very first day, and they weren't the right people there—not that you're the wrong people, but for my specific questions.

I suppose I could ask you, beyond the specific property tax issues, if you know if there are some other economic instruments, tax breaks. Is there a plan and a program to help get these green industries on stream? We talk a lot here, and we've had discussions and we'll have more, about the externalities of the costs of the present electricity generation, and that is—you know what I'm talking about—from the coal-fired plants' pollution, nuclear plants, what to do with the waste, all of those things that aren't taken into account. What we talk about here to some extent is that everything is turned upside down, and it costs more to get green energy, cleaner energy, because we're in this now tradition of, in a way, subsidizing the non-renewables because that's what we've had.

So even with the changes that are happening with the restructuring—of course, that's all up in the air now, so we don't know where that's going to go; that's another subject—it's still difficult with the existing regime, as you know. You hear from those who have been involved in the alternative side of things for some time. They're still having a very hard time, if not an impossible time, getting their foot in the door. I don't know if there's anybody here who can tell me what's going on within the ministry and your relationship with, of course, your finance. Obviously, the Minister of Finance has a lot of say in the policy changes that we need to have made here.

**Mr Pringle:** I don't think we should be answering that. I apologize.

**Ms Churley:** It's not your fault.

**Mr Pringle:** Our area is property taxes. I'd love to talk about those issues, but I think they should turn off my mike if I did.

**Ms Churley:** I'm sure you have some ideas, but I see what you're saying.

**Mr Pringle:** Perhaps someone—I don't know. Len can relay your concerns.

**Ms Churley:** All right. Thank you for your presentation. Perhaps we'll invite specific other officials from the ministry to talk more about those issues as well. But I do appreciate your presentation. As I said, there are some

interesting things that I didn't know were happening under the property taxes. So thank you.

**Mrs Bountrogianni:** Just on that, I would support that request because that was one interest of mine as well.

**The Chair:** We were looking for more than just property tax, but we appreciate the fact that that's your specialty. We'll move on.

**Mr Jerry J. Ouellette (Oshawa):** My concern is very similar. This is not the first time we've asked this ministry to present before us. I specifically asked for taxation rates on fuels to be discussed. It's not your fault that you were sent here, but this is not the first time we've asked for specific questions to be answered. I don't know. Isn't there anybody here who can talk about taxation rates on fuels at all?

**Mr Pringle:** No, we would not be qualified to do that. We will take that message back to the ministry.

**Mr Ouellette:** Yes, because this has gone on for quite a while. We have competitors around the world who are trying to get into Ontario, and this ministry is deliberately not making a decision as to how we can tax these individuals so they can get on the market. We're trying to bring the Ministry of Finance here to determine policy within the ministry so we can establish, can these green energies and the fuel alternatives come forward?

I would recommend, Mr Chair, that we get the right people who can deal specifically with at least my concerns: the taxation rates as they relate to alcohol, to propane, to natural gas and to the standard fuels that we utilize now. I think Mr Johnson has some questions that may be relevant to these individuals.

**The Chair:** Maybe what we can do at the end of the meeting is package what we want and sort out when we'll get that presentation.

**Mr Ouellette:** Sure.

**The Chair:** We will add to your comments vehicles that consume those fuels.

**Mr Bert Johnson (Perth-Middlesex):** I don't know if it applies to the expertise of this panel, but I'm interested, just because of my riding, in the alternative fuel, perhaps, of used tires for the making of cement. If that comes within the jurisdiction of assessment and taxation, I wouldn't mind your comments on that.

**Mr Pringle:** I don't think it would directly. A cement plant would be an industrial plant and that's basically where the assessment and property taxes lie. I don't think it would affect it whether it was using shredded tires in making the cement or not, in terms of that. There might be some land-planning issues there, I don't know, about storing tires, etc, that you might want to ask the Minister of Municipal Affairs and Housing about.

**Mr Johnson:** OK. One other question, I guess, and that is on the issue of windmills for hydro generation: they usually sit out on a piece of land. I wonder when the windmill is a capital project and when it's a piece of equipment. One would be assessed tax and the other one wouldn't.

**Mr Pringle:** Our understanding, and we are not assessors, is that roughly 60% of a wind operation, in-

cluding the land, is the turbine and that would not attract property taxes. But structures, including the tower—and from the pictures we've all seen, they can be quite large—would be considered assessable in improvement or structure and taxable along with the land. The question is what tax rate and whether the towers should be taxed.

**Mr Johnson:** OK. Then along with the other point, if I could, the question that we would like answered is: what department in finance houses the people that we would like here? Can you help us with that, or should we seek that out of—

**Mr Pringle:** I think Glen is working—

**Mr Koskitalo:** John, I believe some of these questions about the taxation of fuels were answered in written responses to specific questions raised at the session we first appeared at. If those aren't complete or if you wish more detail I suppose that could be done.

**Mr Johnson:** But is there a separate department? Who do we phone to—

**Mr Koskitalo:** There is within the Ministry of Finance a group that looks after property taxes, another that deals with commodity taxes such as gasoline taxes, another that deals with corporate income taxes and another that deals with personal income taxes. This might affect consumers' behaviour—

**Mr Johnson:** OK, and if I were phoning in my—I have a book of all the different departments. I'll find those listed, a telephone number for them?

**Mr Koskitalo:** Yes.

**Mr Johnson:** That's great. Thank you.

**The Chair:** Mr Hardeman, quickly.

**Mr Hardeman:** I would just reiterate what everyone else has said. It seems to me that, though this property tax has been quite an issue for quite a number of years, it really doesn't apply to the work of this committee to any great extent. It would seem to me, particularly if it's not the first request, that it's kind of curious that, of all the people we have over at finance, we can't get people here to tell their story, where it fits in.

The one thing that does fit in, and I think Mr Johnson just mentioned it, is the taxation on wind turbines and how that relates to obviously the cost of generating energy with wind turbines, how it relates to putting it on an open field and at what point that becomes an industrial piece of land. I guess, just to kind of put it in context, I've had contacts with a number of people who have communication towers and they put them on the back of the farm. All of a sudden the farmer—because they don't own the land—gets a tax bill for double the value of his farm because they've now made this a commercial piece of land. If you do that same thing with wind turbines, you've eliminated their ability to generate electricity in an economical way. Has the Ministry of Finance got regulations that would prevent that from happening, to arbitrarily make it more expensive?

**Mr Pringle:** Not at the moment. In terms of a level playing field based on use, it would be considered industrial, as other production facilities are. That would



have to be a specific exemption or change, which would affect both the education taxes and the municipal taxes.

Normally when you're putting in an industrial site, a big cement plant, the land and the planning have to be zoned for that use. I'm not sure about the planning restrictions in locating wind power, whether there are any, whether it has to conform and has to be an industrial site for that. But at the moment it would be considered industrial; it is a production site.

1030

**Mr Hardeman:** One final question then, if I could—

**The Chair:** We're going to have to move our way over, to be fair. Ms Churley signalled a quick question, and then Jerry would like to make a comment.

**Ms Churley:** If I may quickly, I forgot to ask you, on the property tax side, do you know of property tax breaks for people, industry or homes doing energy efficiency retrofits in buildings?

**Mr Pringle:** No.

**Ms Churley:** There are no property tax breaks for that.

**Mr Pringle:** There is no property tax break, no.

**Ms Churley:** OK. That would be a good idea, wouldn't it?

**Mr Pringle:** It's difficult because it's the sales value of the home, but yes. There were things done this year for disabled, where the home is retrofit for disabled or along those lines.

**Ms Churley:** Right. That's something that the committee may want to take a look at.

**The Chair:** A comment from our researcher, and then we should move on.

**Mr Jerry Richmond:** One of the items the committee discussed earlier was the possibility of certain biomass or methane collection facilities, say at landfill sites. For example, at the Keele Valley site that's operated for the city of Toronto, they have a private operator collecting the methane and generating power that they sell into the Ontario Power Generation grid.

Maybe you could just comment briefly for the benefit of the committee: how would facilities like that, if private developers went across the province and tapped into existing landfill sites to generate power? Maybe you could just review how they would be treated from a property tax perspective?

**Mr Pringle:** That, I am afraid, I can't answer. We could get you a written answer back. We will ask the Municipal Property Assessment Corp how they would treat those sites and get a written answer to you.

I would note that in the letter that we got, it was stated that "the committee would like to address any ministry policies with respect to property assessment and tax treatment" and that is why the group is here that is here on this particular one.

**The Chair:** OK. Thank you very much for coming forward. We appreciate your information on assessment. That was quite complete but there are others that we're looking for, and we look forward to your response on that last one.

**Mr Hardeman:** You can never hear too much about property taxation.

**The Chair:** I think I've heard too much over the last few years.

## MINISTRY OF ECONOMIC DEVELOPMENT AND TRADE

**The Chair:** We'll move on and call the next delegation: the Ministry of Economic Development and Trade. Welcome. For the sake of Hansard, just state your names. We look forward to your presentation on how we can get more alternate fuels, green energy, involved in our system, both in transportation as well as in electricity.

**Ms Bonnie Winchester:** I'm Bonnie Winchester from the Ministry of Economic Development and Trade. My colleague who is with me today is Al Wahba.

It's a pleasure to be here this morning to talk about potential opportunities in the export of alternative fuels and alternative fuel technologies. I thought it would be useful to start the presentation by setting the stage and helping you understand a little bit about Ontario Exports Inc, which is part of the ministry, so that you understand who we are and what we can typically do to help Ontario firms that would be interested in this area.

Ontario Exports Inc was established in 1999. It's predecessor was the Ontario International Trade Corp. It is an agency of the government and also a division of the Ministry of Economic Development and Trade.

Basically, in its simplest form, our mandate is to assist Ontario firms, particularly small and medium-sized enterprises, in marketing their products or their services internationally. Our programs, to give you a flavour, range from individual consulting with specific companies that would be customized to the organization of trade missions; it would take companies into the market to further explore our export potential; we do seminars to inform Ontario companies about what opportunities there may be in export markets.

One of our programs, which has been highly successful, is called the new exporters to border states program, which takes Ontario companies to the border and introduces them to all the processes and regulations they would have to deal with if they were going into the US.

On page 2 is our organization chart. The agency reports both through the ministry and to a board of directors from the private sector. Our chairman is Mr Bill Saunderson, a former MPP and cabinet minister whom many of you may know. Organizationally—across the bottom—the way we're organized in terms of dealing directly with Ontario companies is that we have three groups: one is international capital projects; another is the Americas, covering North and South American opportunities; then we have a group that deals with all the other international markets.

On page 3, our client group really represents the diversity of all of what I would call the dynamic and innovative companies across Ontario. We've been very

successful in working with them. Last year we dealt directly, consulting with just under 500 firms. We hosted about 75 seminars that helped companies understand more about the opportunities in international markets, and we also participated in 50 trade shows, covering the participation of about 600 companies.

On page 4, I highlight some of our experience that may be relevant to the subject of this committee. Typically our work in the energy field historically has focused on hydroelectric generation. We have typically assisted firms in bidding on major foreign power projects. Two examples would be Acres International, an Ontario engineering and consulting firm that actually was successful in terms of working on Iran's Karun II river dam project—this was a huge opportunity for that company, resulting in about a US\$32-million project—and we have also helped firms that have been involved in bidding for projects in China, specifically the Three Gorges power project.

Something we're looking at currently, page 5, is the Brazilian market. This would potentially have opportunities for traditional power export opportunities, as well as alternative sources. Brazil is currently experiencing a major shortage in power. This has been driven by a number of things. First of all, they have an expanding economy, but an even more significant factor is that they've been suffering from a severe drought so that they're having trouble with their hydroelectric capacity. It was a very closed market in the past, but because of the fact they have a huge issue in terms of supply, they're in the process of deregulating that market.

We sent someone to Brazil in early fall and he met with Brazilian power executives to discuss possible roles for Ontario firms. The reception was good enough and the opportunities were judged significant enough that we're following up on that. We have scheduled, for December 7, a big event called the Brazil Power Forum. We will be bringing people who are knowledgeable about the opportunities in that market and we will be inviting Ontario companies to come and learn more about what the opportunities are for them in Brazil.

This could be opportunities, as I mentioned, in traditional power sources but also alternatives. We would include companies such as equipment suppliers, service firms, technology companies, private power developers and financiers of all those projects. Our plan is that if there's sufficient interest after our December 7 event, we would take a group of companies to Brazil in early spring to further explore what kind of specific opportunities there may be.

1040

On page 6, this chart basically shows you that we feel there certainly is long-term potential for the export of alternative fuels. I guess it's always dangerous to predict the future. Someone in my group has told me, for example, that in the area of energy it's even more dangerous, because apparently at the very beginning of the nuclear age, some had predicted the atom would provide unlimited power that was just too cheap to meter, and I

guess we're not there yet. However, we see a number of global trends that would seem to indicate there's an awful lot of potential for alternative fuel exports in the future.

I'm sure you're aware of these in the work of your committee, but the three we think are particularly relevant to export are, first of all, the fact that there is an increasing framework of agreements that cover potential alternative fuels that would work at reducing fossil fuel emissions. Kyoto has the highest profile, and I think regardless of what the US decides to do in that regard, Kyoto will be a factor in terms of the exporting of fuels and fuel technologies.

The second point is that there is a depletion of conventional fossil fuel sources and also full development of hydroelectric power in a number of countries. Japan would be one example of that.

Finally, I think that in Ontario we have an awful lot of research and development and innovation happening, and there will be a broader range potentially of alternative fuels and alternative fuel technologies that will be available for export at a potentially reduced cost. So we really feel the future of export for Ontario firms is quite bright.

On page 7, we've identified a number of markets that perhaps would have priority if we were going to be directing companies—Mexico and China, for example. Natural Resources Canada did a study in 1999 and identified those countries as having potential, particularly in the area of transportation. In fact, a lot of the examples we've looked at are currently in the area of transportation.

We talked about Brazil a few minutes ago and certainly there are opportunities for transportation in Brazil as well. We were looking at a recent article in the *Oil and Gas Journal* and it stated that ethanol already accounts for about 6% of Brazil's total fuel market.

Japanese automotive firms, as you may have heard, are working very hard to secure the lead in fuel-cell-powered vehicles. Finally, when we look at the European Union, the EU secretaries last year announced that by 2010 they estimate about 22% of total power production is expected to come from renewable resources.

Ontario firms are already beginning to capitalize on these opportunities. Two of them I know have appeared before your committee in the past, but one example would be Hydrogenics of Mississauga, which has recently signed agreements with Nissan and Toyota for the use of their fuel cell test and diagnostic equipment. Another company that's been very aggressive in terms of international opportunities is Stuart Energy. They're working currently on pilot projects around the world. They're in Cairo, Sao Paulo, Mexico City, Shanghai and Beijing. So that, I hope, gives you a sense of what some of the emerging opportunities are.

Finally, on the last page, I thought I would outline how Ontario Exports Inc could potentially assist companies that are in this sector. We basically are ready to work with firms that are interested. Our staff have expertise and contacts in markets and we could help



firms that are interested in entering an export market or interested in bidding on future capital projects that may be located in international markets in the area of alternative fuels.

If companies come to us, we can help them in terms of identifying what markets might be most appropriate to them. We can help them in things like contract negotiation and also, although we don't offer direct financial assistance, we can certainly help people find the financial assistance they may need for these kinds of projects.

I'd like to thank you for this opportunity.

**The Chair:** Thanks very much for the informative presentation. We have about 15 minutes left for questions, five minutes per caucus.

**Ms Churley:** Thank you for your presentation. On page 6 you talk about the development of new alternative energy sources and technologies. I'm still trying to get a sense of beyond—you talk about assisting companies in trade shows and things. What exactly do you do to help promote green energy, alternative energy? What kinds of programs? For instance, would you be working on projects with people from the Ministry of Energy? What is your role in the larger field in developing technologies, helping us move forward?

**Ms Winchester:** Specifically in the green area, I have to admit that we haven't had a lot of past experience. I think it's an emerging area. Although we've certainly been proactive in certain sectors, we typically are more reactive in terms of companies that have indicated an interest in exporting and need assistance. However, based on what we've learned during the preparation for this—there are a number of companies that may be potentially in the export business—it would be worthwhile for us to contact them and talk to them about the opportunity. So that's typically the way we would do it, but in no way, shape or form can I say that we have been very active in this particular sector in the past.

**Ms Churley:** You mentioned that the European Union has established green energy generation targets, which are quite phenomenal compared to where we are. I assume from your previous answer that in a way, being asked to come and speak to this committee has been beneficial to you in terms of discovering that green energy is a new and emerging industry in Ontario and Canada. Have you had an opportunity to look at what they've been doing in Europe? Because it is a very aggressive target to get to that target in the year—what did you say?

**Ms Winchester:** In 2010, actually. Personally, and I know within our group, we wouldn't be involved in the policy area. So I can't really answer your question in that respect.

**Ms Churley:** No, that's fine. But I assume from your presentation, then, that there is a recognition now within your ministry—I understand your role and that you don't do a lot of the policy work; it's there to develop and assist industries to grow. Some of the green energy sector, you may have heard in previous questions, is really having a difficult time in getting into the market

here in Ontario for a whole series of reasons. We touched on a few of them this morning. I'm not sure what role you could play in a ministry, and I'm understanding that you don't set the policy. But in terms of sitting down with this emerging industry that not only is not exporting at this point but is having difficulty getting in the market here, could you play a role in that?

**1050**

**Ms Winchester:** We potentially can. Probably the question that would have to be asked is, is there a big enough market domestically in the short term? Typically, a company would exploit domestic opportunities, to begin with, before going into the challenge of international markets. But certainly I think there is a role for us in terms of informing companies in Ontario that are interested, or potentially would be interested in the longer term, in export opportunities.

I'm new at Ontario Exports Inc, but I certainly know that the ministry always is looking for a balance between looking at helping traditional industries, today's industries, and also looking at emerging companies and making sure that we're not missing the opportunities there. So I think this is potentially something we should be taking a closer look at to see what we can do for Ontario companies.

**Mr Ouellette:** Two things: I see Brazil and I take it that you're going to Brazil on December 7. How long is that for?

**Ms Winchester:** Actually, the event happens in Ontario, at the Ontario Investment Service.

**Mr Ouellette:** So they're coming to Ontario for December 7? On December 7 there will be a group from Brazil?

**Ms Winchester:** Yes. We have some speakers coming from Brazil and then we have invited Ontario companies. So the event is here.

**Mr Ouellette:** The group we contracted out is one of my areas of concern: looking into low-flow hydro generation. I hope that any communication or information regarding low-flow hydro or, as you've listed here, mini-scale hydro, can be passed on to our people just so we can have that information.

My key concern or interest with your ministry: the Premier signed a deal at the Canadian trade mission in Japan a number of years ago with an Ontario company that is currently selling fuel in Japan, and I believe the deal was about \$3 billion. This same company is having difficulty getting into Ontario, yet they can sign a \$3-billion deal in Japan. The Ministry of Finance has now said that your ministry is one of the ministries to sign off, to give them the OK, before they will review how they're going to tax this particular new fuel that will fit directly into the vehicles with no modifications. Do you have any policies on how you're going to view these new fuels, and what sorts of recommendations are to come forward when you review the fuels?

**Ms Winchester:** Our area is not involved in policy. Again, I'm in the same position as the previous presenter. We can certainly take those questions back to our policy

area. Our ministry has the lead, in terms of policy development, in what we call the entire economic and business development cluster. So I'm sure that there would be some answers there.

**Mr Ouellette:** Unfortunately, that deal was signed about two and a half years ago, and an Ontario-based company can't sell the fuel in Ontario until we get the policy going. So I felt it was necessary to get on the record. Mr Hardeman has some questions.

**Mr Hardeman:** Thank you very much for the presentation. I take it from the presentation that you are somewhat in the facilitation business, to bring all the partners together and make things happen around the world.

**Ms Winchester:** Yes.

**Mr Hardeman:** I just want to focus on ethanol and what position the ministry or your company would take. Should we be exporting or trying to export or facilitate the production of ethanol around the world or should we be producing the ethanol and working on exporting the actual product? The reason I say that—I think it comes together with the whole focus of what we need to do in all sectors of our economy. Obviously, if we just export the technology, we're not going to be using our raw materials to provide the ethanol. It would seem to me that, as a government organization, we would promote the avenue of the alternative fuel that would generate the greatest amount of activity in our economy, not just facilitate the selling of a piece of equipment or a piece of technology that would then at the end of the day decrease our ability to market the raw material, such as the corn and so forth, that's going to be used to facilitate that.

Do you go that far in looking at the needs of our economy and working toward the area where we're going to have the greatest benefit?

**Ms Winchester:** Typically, that's the way we would prioritize something. If we were going to be proactive in terms of a particular sector or group of companies, we would absolutely take that into consideration. As you've gathered, it's a new area for us where we don't have a lot of expertise, so in terms of being able to specifically answer a question on ethanol, we can't, but certainly the overall economic impact is one of the guiding principles of where we would spend our time and attention. Al, do you have anything to add to that?

**Mr Al Wabha:** Essentially, it's a relatively new area, but we would obviously be looking at the maximum return to the province in terms of the actual production of the ethanol and the export of ethanol versus the manufacturing side.

**Mr Hardeman:** I guess I would just caution or question to make sure that when someone approaches with—

**The Chair:** We're out of time so make it very quick.

**Mr Hardeman:** When someone approaches you to do that, obviously their benefit is selling the technology. We, as representatives of government and of our economy, would say, "Wait a minute. Why don't we find an investor here to build the facility and export the finished product as opposed to the raw material?"

**Mrs Bountrogianni:** Thank you for your presentation. Just for the record, you mentioned Natural Resources Canada. The international energy association and OECD in Europe speak very highly of Natural Resources Canada. I just wanted to put that on the record, that they're good partners internationally.

Just to be clear then, up until this point you have not assisted firms involved in renewables production for export purposes, but you're willing to.

**Ms Winchester:** That's correct, absolutely.

**Mrs Bountrogianni:** Then I guess my original questions are moot, but that's fine. I'm glad to hear there is a future for it, because obviously you do a lot of work in the other areas, so it would be excellent. We are behind in Ontario, as you know, as far as exporting renewables is concerned. It's just amazing what's going on in Europe as far as exporting is concerned. For example, Spain exports most of the wind turbines. It used to be Denmark's bailiwick, and it's expanding and it's seen as an opportunity.

I guess I can't ask any relevant questions because you're not in the business yet, but I would be really happy to hear when that starts occurring, because I think we have to get there pretty quickly.

**The Chair:** Thanks for your presentation. It's much appreciated. We're looking forward to getting more renewable, green, whatever, alternative fuels into Ontario and moving ahead with this. We look forward to assistance from your ministry as we do.

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#### MANAGEMENT BOARD OF CABINET

**The Chair:** I call forward the next presenters, the delegation from Management Board of Cabinet. We are providing a full half-hour. That's why we're running a little later than originally planned. I hope that's in order with you. After your presentation, whatever time is left we'll divide between the three caucuses.

**Mr Tony Pierro:** My name is Tony Pierro, acting CEO of the shared services bureau with Management Board Secretariat.

**Ms Barbara Ko:** I'm Barbara Ko. I work in the Management Board Secretariat. I'm director of the agency relations office and one of my primary clients is the Ontario Realty Corp, an agency of Management Board Secretariat.

**Ms Angela Mazzotta:** I'm Angela Mazzotta. I'm vice-president of facilities support with the Ontario Realty Corp and I'm here to provide any supplementary information to Barbara and Tony.

**Mr Pierro:** Thank you for the opportunity of coming here. Today, Barbara Ko, director of the agency relations office, and I will spend a few minutes going through an overview of activities that MBS has underway related to alternative fuel, energy efficiency and conservation in government operations. I assume you have the package.

**The Chair:** Yes, we do.



**Mr Pierro:** As a bit of an overview and a bit of background so you have an idea of how we fit into the whole scheme of things, Management Board Secretariat manages government resources and develops the policies and standards for internal operations of government, including business resource planning and monitoring; human resource policy and planning; the whole IT, the information and technology area and policy and planning for that function; and administrative management policy.

The shared services bureau of MBS is responsible for the provision of business support services to the OPS, including payroll and benefits; procurement, where again there's a bit of greening that I'll talk about later on; passenger vehicle fleet management, which is something you asked to have some information on; and the green workplace.

The Ontario Realty Corp, an agency of MBS, is responsible for managing the real property assets of the Ontario government.

On slide 3, Management Board Secretariat has a statement of environmental values that lays the foundation for managing government operations in an environmentally conscious manner. Some of the components of the MBS statement of environmental values include:

"MBS believes that, in the operations of government and the public service, the health of the natural environment should be sustained for practical, economic and aesthetic reasons."

"MBS corporate procurement policies incorporate environmental considerations such as waste reduction, reuse and recycling in the development of product specifications for significant purchases" when we go out to tender or for RFPs.

"The ministry's property development and management practices sustain and conserve a healthy diverse natural environment."

Through the next slides we will be speaking to how the statement of environmental values actually has been woven into the activities of MBS in terms of how we do procurement and some other items.

On slide 4, the green workplace program is one of the components of the MBS statement of environmental values. The green workplace program was introduced in 1991 to promote greening in the OPS workplace. The program supports the protection and conservation of a healthful environment by encouraging all government employees to be environmentally responsible in their activities at work, by raising their awareness in terms of recycling and encouraging environmentally friendly practices such as alternative transportation and recycling.

From its introduction, the green workplace program was the responsibility of the Ontario Realty Corp. With the change in direction for ORC, that function has been transferred to the shared services bureau. So in May 2001 the responsibility for the program was transferred to us, and what we're in the process of doing right now is establishing a unit to actually look after the green workplace program.

On slide 5, a bit of background: we are in the midst of developing the organizational framework for the green workplace program. But before we actually hire the manager for that unit, some of the preliminary work that we are carrying out is developing a bit of a state of the nation in respect of greening and how to leverage on some of the past successes.

What we are currently doing is developing a bit of a database on some of the best practices, including what some of the OPS policies and practices are, and looking for best practices and program models in other jurisdictions, whether it's some other provinces or the federal government. This foundation work will actually assist us in understanding how to target the programs and raise employee awareness related to environmentally friendly practices. SSB will also be reviewing opportunities to maximize the integration with other OPS entities in terms of greening; for example, procurement practices, fleet management and facilities management.

On page 6, just to go over some of the procurement components, the Ontario government's procurement practices are designed to ensure it obtains the best value for money expended by acquiring supplies, equipment and services through the competitive process. The government is committed to ensuring that the principles of fairness and transparency are applied in its tendering procedures and that qualified suppliers have open access to government businesses.

The procurement policies actually recognize the importance of environmental considerations and provide a springboard for environmentally conscious procurement. Subject to the overall requirement to ensure that all procurement is undertaken in a geographically neutral manner and does not create any discrimination or preferences, environmental considerations such as reduction, reuse and recycling measures are incorporated in the development of the commodity specification, the terms and conditions and the contract-award decision for all tenders estimated to be over \$10,000.

On slide 7 is some information related to the passenger fleet program. The shared services bureau recently assumed responsibility for the management of the passenger fleet across the OPS. This is one component of the overall government's fleet management. As you are aware, we have snowplows and a lot of other types of fleets out there.

In August 2001, a contract was awarded to ARI Financial Services to provide passenger fleet management services. ARI Financial Services is one of Canada's leading fleet management companies, with over 78 years of experience. ARI currently manages approximately 55,000 vehicles across Canada. The current size of the passenger vehicle fleet within the OPS is approximately 6,000 vehicles.

The objective of the new fleet program is to have passenger vehicles and passenger vehicle management operations provided in a very cost-efficient and effective manner. This includes the full cycle of acquisition, operation, administration and remarketing. The full cycle will

optimize the replacement of vehicles to ensure that newer, more environmentally friendly, fuel-efficient vehicles are utilized. Due to environmental concerns, the automotive industry has responded over the past few years by improving fuel efficiency and lowering the emissions on new vehicles. By replacing our vehicles with newer ones, we're actually going on more of an environmentally friendly course.

On page 8, continuing on with vehicle fleet, where it is cost-effective and operationally feasible, the use of alternative fuel vehicles will be considered. In fact, in the next slide I'll talk about a couple of alternative fuel vehicles that we actually have in place. As part of the terms of the ARI contract, the service provider will be reviewing the existing fleet and recommending opportunities to improve fuel emissions and fuel efficiencies. As part of the ongoing fleet management service that we have with ARI, recommendations will be made by the service provider regarding opportunities to increase the use of alternative fuels and measures for decreasing fuel emissions from the current fleet as we start to replace them over the next few years. As part of this work, we will be looking at successes and best practices from other jurisdictions, as well as related costs and limitations, to ensure that we are proceeding in a manner that addresses environmental, fiscal and operational considerations.

I'd also like to add that the current vehicle acquisition tender we currently have with ARI allows manufacturers to identify alternative vehicle specifications other than the standard Ontario vehicle specifications. This was done to encourage automakers to propose alternative fuels such as natural gas, propane, ethanol, electric-gas or gas-electric or even fuel cell technologies with some of their vehicles. The evaluation criteria for the selection of a contract bid for passenger vehicles includes the assessment of fuel economy as part of the overall total cost of maintaining that vehicle.

Other than by exception, passenger vehicles will be leased—that's the new directive we have within the government—and we will be targeting for vehicles within the passenger fleet to be no older than four years. Vehicles under four years of age are designed to be more fuel-efficient, as you are probably aware. As we move to a leased environment, we expect to see improvements in our fleet in terms of emissions and efficiencies due to the improved technology available in newer vehicles.

On page 10, just to give you a couple of examples of some of the things we are doing, currently the OPS practice and interest in environmentally friendly fuel-efficient vehicles has included the acquisition of 11 hybrid vehicles, 30 dual-fuel vehicles and 20 propane vehicles within our fleet. The 11 hybrid vehicles, which our ministry is actually testing out right now, represent a very new technology that's less than one year old. The initial business process review conducted by ARI, who is our vendor of record, will analyze the existing alternative fuel vehicles, including the 11 hybrids, to determine their feasibility within the OPS to see whether we should be expanding the program. The annual business process

review that will be done by ARI will be reviewing and encouraging the use of more fuel-efficient and alternative-fuel vehicles, again, where operationally feasible and cost-effective.

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As you are aware, we have a travel management policy within the OPS. The mandatory requirements for renting vehicles on government business include the size of the rental car, which is to be the smallest possible for the business task at hand. Providing control over the size of the vehicle rented contributes to a reduction in overall vehicle emissions and, as a result, of employee travel. Wherever possible, local transportation is to be used in preference to autos and taxis, and we've just recently negotiated a volume discount with VIA Rail so that, again, when we're going between cities, we can actually use VIA Rail for intercity travel.

That concludes the component related to vehicles and procurement. I'm now going to pass it on to Barbara Ko, who will deal with the ORC and building efficiencies.

**Ms Ko:** The committee has asked the Management Board Secretariat to address policies besides fleet that may be of relevance to the committee deliberations. In the interim report that Dr Galt released yesterday, it's mentioned that energy conservation and efficiency measures continue to play a very important role—

**The Chair:** Just an interruption: we haven't released the interim report as yet. It'll be tabled today at roughly 2 o'clock.

**Ms Ko:** It will be tabled today. Sorry, I jumped the gun. I apologize.

**Mr John O'Toole (Durham):** You haven't received a leaked copy of it, have you?

**Ms Ko:** No. I do apologize to the committee members.

**The Chair:** We would look forward to seeing it.

**Ms Ko:** Just to continue, energy conservation and efficiency measures continue to play a very important role in reducing energy consumption and greenhouse gas emissions. I'd just like to touch quickly on some of the measures that are in place right now in government buildings.

Ontario Realty Corp is the agency that looks after real property for the government, including all facility management. ORC and its service providers have adopted an energy management plan, and we have outlined some of the things in this energy management plan, which include tracking energy consumption in government buildings, conducting energy audits and raising tenant awareness through various forums such as educational sessions, newsletters, posters etc. In fact, Profac, the service provider for ORC in the GTA and the southwest, has put out bulletins that encourage tenants to save energy, they have provided energy-saving tips and building energy efficiency tips for building operators and they promote people's powering down their computers to save energy. We have examples of the newsletters, if the committee members are interested in taking a look at them, just to show that we are taking active measures to encourage energy conservation.



As well, energy conservation and alternative fuel sources will be part of any capital project considerations whenever there are opportunities, both in new buildings and in renovating and redeveloping existing buildings. Any energy-efficient initiatives will be included in any of the considerations and will be part of the project.

Turning to page 12, part of the energy management plan also includes implementing pilot projects to analyze the efficiencies and cost-effectiveness of various products and systems, looking at setting reduction targets as well as exploring opportunities for bulk purchasing of energy and fuels.

To provide a few more examples of what has been done, turning to page 13, in government buildings there has been the installation of automatic lighting devices, lighting retrofits and lowering of water consumption. There are installations and upgrades to building automation systems to control lighting, cooling and heating. Wherever opportunities arise, there are natural gas conversions to create the most instant savings. In all building retrofits—for instance, in any sort of roof replacement—there will be additional insulation put in to make sure that we introduce the most energy-efficient methods and use the most energy-efficient materials. As well, there is replacement of heating and cooling equipment with more energy-efficient ones.

The last three slides conclude the very brief examples of what is in place right now in government buildings. On behalf of Tony and myself, I'd just like to turn to page 14 in terms of the conclusion from the Management Board Secretariat. The Ontario government supports the increased use of alternative fuels in its operations and we will pursue opportunities for the use of alternative fuels wherever it's appropriate and feasible. We'll continue practise with energy-efficient and conservation in place right now, and any decisions on the policy framework and actions will be determined by balancing the environmental, the business and the fiscal considerations.

I'd like to thank you for the opportunity for us to make the presentation, and my apologies again for mucking up the report.

**The Chair:** That's OK. There's no problem. I just thought I'd bring it to your attention, though.

Thanks very much for your informative presentation. There's no question—I've heard comments and the committee has commented about the need for government to lead, to demonstrate to the public the importance of the use of alternate fuels.

We have about three minutes per caucus, starting with the government on this round.

**Mr Ouellette:** One of the policies mentioned was that it was a requirement that the smallest vehicle be utilized. Yet the Crown Victoria, for example, probably one of the largest vehicles out there, is using E85 fuel, an environmentally friendly fuel. But according to policy, people wouldn't be allowed to use that. When the policy was developed, were things like this taken into consideration? Although they may not be the same size of vehicle, new technologies coming forward may be

able to be put in the most popular vehicle. From a rental basis, when government employees are out there, this eliminates them from utilizing the most environmentally friendly vehicles. Has that been taken into consideration?

**Mr Pierro:** That I'd have to go back and check.

**Mr Ouellette:** One of the other things: this committee has discussed recommendations for a mandatory phase-in of environmentally friendly vehicles for the government whereby—and I think it was Mr Gilchrist, if I remember correctly, who recommended or discussed it—a 10% per year turnover of new, environmentally friendly vehicles be purchased by the government. I think you mentioned the figure of 6,000, which would mean we would purchase 600 new environmentally friendly vehicles, whether they be E85 or the combination vehicles, whichever the case may be. What would be the impact within the recommendations of your ministry if that were to proceed?

**Mr Pierro:** I wouldn't be aware of what the implications are, but one of the reasons for moving to the ARI tender is to actually replace a lot of the older vehicles that we have on the road right now. Over time we intend to have only four-year-old vehicles on the road, which means that we'll be eliminating a lot of older clunkers.

In terms of the 10% rollover for environmentally friendly, I'm not aware of what that means.

**Mr Ouellette:** Essentially, the recommendation would be that the government would be supporting an industry by making part of its fleet environmentally friendly.

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**Mr Pierro:** I think currently we are supporting that because we have—I'm trying to remember the number now—a number of alternative vehicles in place. We have roughly about 60 alternative fuel vehicles on the road right now that we are testing.

**Mr Ouellette:** So about 1% of the fleet?

**Mr Pierro:** That's right.

**The Chair:** We have another half a minute. Mr Johnson?

**Mr Johnson:** You have 6,000 vehicles. You're going to do that in four years, so that's 1,500 of them a year. You've given the management of them to ARI. You're concerned about the emissions. I guess I want to know a little bit about the cost. I'm not supposed to ask it, but does that increase or decrease the costs of the operational fleet?

**Mr Pierro:** No. In fact, the reason for moving to ARI is that it will decrease the overall fleet management costs of the Ontario government.

**Mr Johnson:** No, I didn't mean having them manage it. I meant the emissions or the more proper fuels, I guess.

**Mr Pierro:** The newer vehicles, as I mentioned before, are all better economy in terms of being fuel efficient. So the intent is to move out of the older vehicles we have that have a very high energy use—

**Mr Johnson:** OK, not necessarily going to fuel cells or natural gas or those other alternatives?

**Mr Pierro:** We are looking at that as part of the program to see what's efficient in terms of moving from an economic and also environmentally—

**Mr Johnson:** One of them is natural gas?

**Mr Pierro:** Yes.

**Mr Johnson:** There are some people who are very allergic to it. I guess you wouldn't want to provide cookies with peanuts in them to staff who have peanut allergies.

**Mr Pierro:** We definitely have to take that into consideration.

**Mr Johnson:** OK, thank you.

**The Chair:** We'll move to the official opposition and our researcher has a question to ask on behalf of Dr Bountrogianni.

**Mr Richmond:** Ms Ko, I think this question should be directed to you. Mrs Bountrogianni was interested in your presentation. I think you used the phrase that energy considerations enter into Ontario Realty's design for new buildings or something to that effect. She was wondering if, when you look at new building designs, whether you consider things like energy-use targets or whether the ORC would look at certain innovative pilot projects, like the installation of solar panels or the like? I wonder if, on Mrs Bountrogianni's behalf, you could respond to that, please?

**Ms Angela Mazzotta:** Maybe I should respond to that on behalf of the Ontario Realty Corp. All of our building designs and specifications are constantly revised to ensure that energy conservation measures and products are included in that. Solar energy projects have been considered, and in fact there are pilot projects occurring as we speak across the province. It wouldn't be fair at this point to comment on how well they're doing or whether it's something we would be implementing across the board, but definitely, as we indicated earlier, there are pilots that have been implemented. They are being evaluated and we'll probably be able to ensure that if they are successful, those will be considered in future projects.

**Mr Richmond:** Could you possibly, for the committee's benefit, provide any further information after today on those pilot projects?

**Ms Mazzotta:** We certainly can provide that, yes.

**Mr Richmond:** Where they are; what ORC has done.

**Ms Mazzotta:** Sure, no problem.

**The Chair:** Just a comment: I think part of this question may be coming from the thinking of large institutional buildings with big flat roofs—great places to set up solar panels. We understand it's happening in other countries. We were hoping that the Ministry of Training, Colleges and Universities would have been here to talk along that same line; hospitals, similarly.

Ms Churley, it's your turn.

**Ms Churley:** Following up on that, I think that would be a very good recommendation coming from this committee to set the tone and set some policy around that, because of course you follow government policy and you

would have a good opportunity to put some of those pilots in place.

I wanted to follow up on the conservation and energy efficiency work that you're doing. Have you had a complete energy audit of all government buildings—and I know there are a lot of government buildings—over the past five years or so? I'm just trying to get a sense of what we know about our existing buildings.

**Ms Mazzotta:** I guess I had better answer that one as well.

**Ms Churley:** And also, if I may add, what would those energy audits consist of? What do you do?

**Ms Mazzotta:** The answer to your first question is, yes, we do carry out energy audits, predominantly on what we call our primary facilities, where we have full responsibility, the larger, more complex type of facilities across the province. Those energy audits are occurring as we speak. There is a plan and a program that is being undertaken, and as part of that they go through all the various components of a facility and how well and how efficiently it's working, so that basically is happening.

Results from the energy audits obviously are what we use to improve and to introduce new methods, systems, products and whatever else. That's the only way you're really going to be able to determine how well you're doing. We haven't completed the energy audits. ProFac, our service provider for the GTA and the southwest, as I said, has implemented the program and is currently working on those; we have a list of buildings that the audits are being conducted in. In all fairness, at this point I do not have that information readily available as far as what we're doing and how they're being carried out, other than to assure you that they are happening as we speak and we do have a program for that.

**Ms Churley:** Do you have some information on that that you can provide for the committee?

**Ms Mazzotta:** We have information on that and we can provide that.

**Ms Churley:** I'm not talking about piles and piles of paper, but so we have—

**Ms Mazzotta:** Just sort of the components, yes.

**The Chair:** It would be good if you could condense it to one page.

**Ms Churley:** Because you should see my office; there's paper everywhere. But I would be interested in what kind of audits are done, who's doing it, and if you have results from some of those audits. Would you have recommendations yet as to what should be done?

**Ms Mazzotta:** I'm not sure at this point—

**Ms Churley:** Are retrofits being done, or is that waiting until the audits are complete?

**Ms Mazzotta:** Retrofits do occur on an ongoing basis as we do projects to improve our facilities. That's weighed against the audits, obviously. When we have the results of the audits, it will determine what the costs are, and as Barbara had indicated earlier, costs are obviously woven into the equation. The environment, the impact on programs for clients, all of those things come together when you're determining what to do in a facility.



But yes, in fact, the reason we're undertaking the audits is obviously for the purposes of determining what needs to be done in a particular facility to make it more energy-efficient. Having said that, those recommendations that come out of the audits will be taken into consideration when developing our capital planning programs on an annual basis, and that's where those recommendations will be implemented.

**Ms Churley:** Would you have any data on payback, for instance, on a retrofit of a building: putting in new windows, many of the things that you might do—changing the heating source, caulking the windows, all those sorts of things? As we know, you have to put money upfront, but it saves money in the end. Do you have any of that data?

**Ms Mazzotta:** As a matter of fact, every project we undertake has a business case with it.

**Ms Churley:** Right. That would be part of it.

**Ms Mazzotta:** Of course you would know that there is going to be a payback within a certain amount of time and what that payback would be, and what the initial investment is. So the answer is yes, we do have that. The projects that do go forth are the ones that will be substantiated by a business case to ensure there is a payback.

**The Chair:** OK, thank you very much. Thanks for coming before us. It's much appreciated. Take care.

Mr Ouellette was asking earlier about tax information from the Ministry of Finance on taxation of other fuels in particular and those vehicles and possibly other areas. Maybe we're going to have to put it in writing and be a little more specific as to what we would like from that ministry, or would you like to make some comments at this time?

**Mr Ouellette:** I just believe the taxation rate as it relates to natural gas, standard petroleum that's utilized and propane for vehicles should be looked at, as well as diesel. We should have a presentation that deals with the taxation rates of those fuels and new fuels coming in because, as it stands now, my work with those ministries has indicated that they don't have a policy. It's difficult to bring new fuels in. As I mentioned in committee, here in Ontario we have a company that has been selling in Japan for two years and can't sell its own product here in Ontario as of yet.

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**The Chair:** Would we be wise, Mr Ouellette, to look at some of our hearings that we plan to have in February, invite them in, and through our clerk give them very precise, detailed information on what we're looking for?

**Mr Ouellette:** I believe that would be helpful.

**The Chair:** What they came forward with today on assessment was just fine, in my opinion. However, there was just that one little chunk, and we're looking for the big picture.

**Mr Ouellette:** Yes.

**The Chair:** Can you store that away and maybe even let them know now that we want more information and

that we'll be asking for them maybe as one of our first presenters when we get into hearings in February?

**Mr James J. Bradley (St Catharines):** Mr Ouellette has certainly identified a major problem, and I think your suggestion to have them in early in February is a very good one, because there's no doubt that if you are going to introduce new fuels, one of the considerable factors is going to be the cost, and the cost is influenced by the amount of taxation on that fuel. You can either be punitive or provide an incentive.

I think we recognize, as people who represent others in our communities, that people are very sensitive to price when talking about any fuels. You need only have the price of gasoline at the pump go up and your office will receive at least half a dozen calls asking why it has gone up. So that is important.

I think particularly initially, Mr Chairman, and you've made reference to this in other meetings, when you are bringing in a new product, a new fuel, that is usually the time where you have to have some kind of incentive. Perhaps as you move along, that incentive may change in terms of the monetary value of the incentive, but Mr Ouellette makes a very good case. There's a situation where we have, in another major industrial country of the world, a product that is having a much easier time than it is in our own country. This committee can have a significant influence on that through the recommendations, so I think your suggestion that they be one of the early people in February is a good suggestion.

**The Chair:** Maybe we could just move it a little further and include home heating, all fuels.

**Mr Bradley:** Exactly.

**The Chair:** Also, as it related to insulations, I would have thought the Minister of Housing would want to talk to us about that. How they tax insulating materials in general I would think we would want to hear about as well.

OK, we'll leave that with our clerk. I think it's all printed in Hansard. You can pick that up and maybe send it to him just to indicate in how much detail we want to look at this, and maybe we need to give them an hour in total at that time. Maybe we can sort that out a little later, but I think we want to spend a lot of time with them to get a good understanding.

Ms Churley and then Mr O'Toole.

**Ms Churley:** I think that's a good idea and I support that. I just want for the record to state my extreme frustration at the inability of the Ministry of Finance to come forward and be able to answer specific questions. I know that came on the record. We've all put that on the record before.

With all due respect to the people who were here today, as we stated, they came and did what they were asked to do, of course, by the ministry at our invitation. But it is true, as I think Mr Pringle mentioned at the end, that we had asked for people from the finance ministry to come, and it is true that some answers that weren't able to be provided at that very first meeting—I don't know how many of you were there. Remember that? We got

almost no answers to questions. We were provided with some answers, but it's some time since I looked at them now. I'll review them again, but some of those answers were extremely inadequate in terms of what we're trying to get at.

I wanted to do some follow-up and talk about some of the problems that are identified. I have problems with some of the answers and the approach that the Ministry of Finance is taking. And of course the stakeholders out there are having huge problems in buck-passing, so to speak, on who is responsible, the Ministry of Energy or the Ministry of Finance, for some of the economic instruments we need to see in place and some of the problems.

What we need are real people in here from that sector who can respond specifically to the questions we've asked before, and perhaps we can enter into a dialogue about some of the problems they're facing in terms of bringing some of those tax incentives or whatever in place, to make green energy feasible in the marketplace. That's what we're trying to get at here.

**The Chair:** I think what we'll do, Ms Churley, in just checking with the clerk, is to extend the invitation specifically to the deputy and then the whole ministry will be covered. Then it's up to him or her to bring with them the necessary staff for support. Then we'll be able to cover the whole area and set aside—I'm suggesting an hour, so it wouldn't be quite complete with them.

**Ms Churley:** Can I make a suggestion? I wonder if it would be useful to have the specific point people responsible for this area come, along with—I don't know, would it be from OPG and/or the Ministry of Energy? I know we don't want a roomful of people and for it to be convoluted, but what happens is that sometimes it's difficult to sort out who is responsible for what. If you've got representatives who deal with those issues in the room at the same time, if one cannot answer or says, "That's not our responsibility, it's theirs," then we can get answers from both.

**The Chair:** Maybe what we should do is have a subcommittee meeting to try and sort out how we're handling things.

**Ms Churley:** Perhaps. I think this is such a key piece to what we're trying to do here and the recommendations we make. We really need to understand what's going on now and what changes we need to recommend, to make sure that we're able to carry out our mandate here.

**Mr O'Toole:** I hope what I have to say has some value. I just want to respond. We are filling time here.

**Mr Bradley:** You're setting yourself up there, John.

**Mr O'Toole:** I just thought, it's so close to lunch, why start further work?

In response, and with respect to Mr Bradley, I just want to say on the record here, he did indicate that you change the price of gas, or fuel for that matter, and you see instant buying decisions made. At 100 kilometres an hour, they'll do a U-turn for 0.3 cents. My point is, though, with all respect, and I co-chaired the gas price task force some time ago, there's a lag effect. I think we're seeing today the results of the work we did.

Considerable effort went into that report and many of the recommendations, which were price notice and all those kinds of things. Clearly we're seeing it in the marketplace, playing itself out.

**Ms Churley:** Is he talking about the gasbusters?

**Mr O'Toole:** I co-chaired that activity and I'm very proud to see gas under 60 cents a litre.

On a more serious note, I think Ms Churley's point on the joint considerations with respect to energy are complicated. The Ministry of Energy, Science and Technology has a role, sort of at the policy level, but most of the huge implications are in finance. If you talk about one without the other, if you look at the role of SuperBuild, as an example, and any rollout of partnering or P3 kinds of things, you're going to find out that it's in SuperBuild and in finance and tax policy.

There's a good suggestion that if they're there, get the two key point people, who might be David Lindsay and somebody else representing finance, and I applaud that. It's like Mr Ouellette said; the whole issue of policy direction is very much implicated with the financial decisions on tax and incentives, if you will. So I think it's a good idea to have, not a whole roomful, but two or three of the so-called experts who can say, "Yes, these are our options."

**The Chair:** Anything else?

**Ms Churley:** I like the idea of inviting David Lindsay.

**Mr O'Toole:** He's a very knowledgeable guy.

1140

**Mr Bradley:** Mr Chair, if you could indulge me briefly, I was unable to be with you a little earlier, and if you've dealt with this, just tell me you've dealt with it and that will be the end of it: the letter from the Honourable Chris Hodgson, Minister of Municipal Affairs and Housing. I'm not being partisan to say it, but I was disappointed that they were unable to provide us with some input. The Ministry of Housing deals with the building code, I thought, and the Planning Act. I thought they could have been helpful to us in providing us with information.

I note in the letter from the minister that they declined to appear. Someone may wish to ask of the minister if perhaps with further clarification or detail they might be able to help us out a bit in informing the committee, and perhaps if they have some pet projects that may advance our cause, they might be able to suggest them to us. I understand what the minister is saying in the letter. It doesn't directly look as though they would be involved, but I thought housing and municipal affairs, particularly the housing end of it, would have been helpful for us, to be able to chat with them a bit about it.

**The Chair:** Possibly the subcommittee might want to direct the clerk to write and give specific instances where we're interested and maybe just looking at our broad directions. They didn't appreciate the role they might have, and I can understand that, but I too was disappointed that they chose not to come before us.

**Ms Churley:** I missed this letter. I think it was I who had asked that they come forward in the first place and I



thank Mr Bradley for bringing it to my attention. I think if we're very specific about our need to talk to them about policies around conservation and efficiency and the building code, what's in place now—there's a new building code coming forward, or has come forward, and energy efficiency and conservation are not addressed in it.

To follow up on that, there is a letter as well from Colleges and Universities making the same case. They say they've "undertaken to survey training and post-secondary institutions for such information" and will forward anything we might consider relevant.

One of the things you mentioned, Mr Chair, was that we were interested in discussing solar panels with them, pilot projects and things.

We want information. If there is anything in place, let's hear about it. But also, this committee's job is to try to set some policy for the government and for our colleges and universities and other sectors. So perhaps we can deal with it in subcommittee. Perhaps we need to be a little clearer with people as to why we're inviting them forward. It's not just to get information from them, which is part of it, but also to share our thoughts and have them aware of what we're trying to achieve here. It's also a communications exercise.

**The Chair:** If they look simply at the terms of reference, they may not fully appreciate—we may need to fill them in just a little more than we have.

OK, I guess we've covered that topic. For the committee's information, I'll be tabling the report this afternoon at 1:45, 2 o'clock. At 4 o'clock, we're going to have a little media event. If the media have any questions, I'll make a two- or three-minute statement and then a rep from each party can make a comment. That's at 4 o'clock in the media room.

At our next meeting in a week's time we'll be looking at some travel in January. Mr Ouellette, we're planning on travelling in the last week of January. We're trying to make it flexible and work for everyone. I think I heard a rumour that that might be a difficult week for you.

**Mr Ouellette:** Yes. I don't have a calendar directly in front of me, but there are a couple of days that I will not be able to—I think the 29th and 30th are the days that I

have difficulty with. I can meet up with the committee after those dates, that's fine, depending on where they're going and if that's possible.

**The Chair:** The week of the 26th through the 30th.

**Mr Ouellette:** Is the 26th a Sunday?

**The Chair:** Monday. No, sorry, the 25th to the 29th.

**Clerk of the Committee (Ms Tonia Grannum):** The 28th would be the Monday.

**Ms Churley:** The 25th to the 29th?

**The Chair:** Oh, I'm sorry, 2002. You're right, it's January 28 to February 1.

**Mr Ouellette:** The 29th and 30th are difficult. I could come out on probably the 31st. It depends on where.

**The Chair:** What's going through my mind is, as a committee, could we look at the first week in February for the travel and do hearings in the last week in January?

**Mr Ouellette:** That would be fine by me.

**The Chair:** Does that create a problem for anyone? I want to be as flexible and get as many people going as possible. So look at your calendars, because it's awfully hard to catch up with the committee. It's just as expensive to travel with it for the whole week, so if we can find a week when all nine of us can go, great. If we can't, we might have to flip a coin.

**Mr Ouellette:** If I'm the only one, I don't have any problems with—I'm not saying change it on my behalf. I'd rather have the committee go ahead.

**The Chair:** The other thing is—it's unfortunate we couldn't chat with Mr Gilchrist—we would like to have a little demonstration of the fuel cell. He's either looking at next Wednesday or the following Wednesday, something as a demonstration for the media.

**Ms Churley:** When is the subcommittee meeting?

**The Chair:** When would you like it, ma'am?

**Ms Churley:** Do we need to have it before the next meeting?

**The Chair:** Maybe look at the week of the 10th or 11th, in there.

**Ms Churley:** Of December?

**The Chair:** Yes.

**Ms Churley:** Sure. Sounds good.

**The Chair:** OK. The meeting is adjourned.

*The committee adjourned at 1146.*







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### SELECT COMMITTEE ON ALTERNATIVE FUEL SOURCES

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Mrs Marie Bountrogianni (Hamilton Mountain L)

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Second Session, 37<sup>th</sup> Parliament

## Assemblée législative de l'Ontario

Deuxième session, 37<sup>e</sup> législature

# Official Report of Debates (Hansard)

Wednesday 5 December 2001

# Journal des débats (Hansard)

Mercredi 5 décembre 2001

**Select committee on  
alternative fuel sources**

**Comité spécial des sources  
de carburants de remplacement**



Chair: Doug Galt  
Clerk: Tonia Grannum

Président : Doug Galt  
Greffière : Tonia Grannum

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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

**SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCES**

Wednesday 5 December 2001

**COMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT**

Mercredi 5 décembre 2001

*The committee met at 1009 in room 228.*

**The Chair (Mr Doug Galt):** I call to order the select committee on alternative fuel sources. Our apologies for the small number here in the committee, but there are a lot of committees meeting this morning and an awful lot of things going on, so I'll extend their apologies.

**ASSOCIATION OF MUNICIPALITIES  
OF ONTARIO**

**The Chair:** Maybe we can start by calling forward the Association of Municipalities of Ontario, Marvin Caplan and Pat Vanini. Thank you on behalf of the committee for coming and presenting to us. Some of the things we have been looking at have been rather exciting, and we're interested in some of your thoughts on the kinds of policies that might be implemented to move toward greener, more environmentally friendly energy sources. We have set aside a total of a half-hour, so anything left over after your presentation we'll divide up among the three caucuses for questions. Go ahead.

**Ms Pat Vanini:** If I might, just a couple of things: we appreciate the opportunity to appear. To be quite honest, the paper that you have is perhaps not our final submission to you. It was fairly short notice and, to be quite frank, we had to scramble to get some stuff together for you. In terms of some clear recommendations and ideas, we would like the opportunity to make a further submission on that front as we have more chance to consult with our members.

The other thing I would just like to mention is that, unfortunately, I have to be at one of those other standing committees, so I need to leave probably around 10:30, but I can leave Mr Caplan with you.

**The Chair:** There will certainly be all kinds of opportunity for presentation, into February. We were just wanting to meet, prior to year-end, with a few specific groups that we hadn't met with earlier. So please go ahead.

**Mr Marvin Caplan:** Thank you for inviting us here today.

The development and broad availability of fuels with little or no impact on air quality is clearly of great interest to municipalities in Ontario, particularly those in the south that suffer through more and more smog days each summer. Vehicle exhaust is a major component of that smog soup that sends thousands of Ontarians to emergency wards each year with respiratory problems.

Concern over air emissions extends to all municipalities that care about ecology and climate change. Emissions from the transportation sector account for nearly one third of all greenhouse gas emissions in Ontario. We all have a stake in reducing greenhouse gas emissions and doing our part to meet the Kyoto targets that Canada has committed to.

Municipalities aren't only interested in this because it affects our communities and those who live in them, but also because larger municipalities, like my own hometown of Hamilton, are pollution emitters themselves and have a responsibility to reduce their emissions, particularly from their municipal fleet, their transit fleet and their landfills. This is what I am going to talk about today: activities that are already underway in municipalities to reduce their air emissions that contribute to summer smog and climate change.

My own community is a good example. The industries, and the actions of our city council and staff, are helping Hamilton make progress in many ways. In fact, last year our city won the Dubai award for the improvement in our air quality. We were selected as the fore-runner in the world in improvement in air quality.

As if the health of our citizens and our planet is not enough of an incentive to reduce our emissions, there are some other compelling reasons. In terms of building a business case for emission reduction initiatives, often you can demonstrate cost savings by reducing your consumption of more costly fuels or generating revenue by selling emission reduction credits or selling your own alternative fuel, like gas or electricity derived from landfills.

There may also be some economic development spin-offs that can benefit our communities. For example, increased ethanol production in Ontario could benefit corn farmers in agricultural areas and ethanol processing plants in other municipalities. So these spinoff benefits should always be factored in when considering the business case for investing in emission reduction technologies.

What can municipalities do to help? They can show leadership by adopting low emission initiatives for their government and transit fleet, a low-sulphur fuel policy, a low-emission vehicle procurement or conversion policy, promoting public transit, building bicycle paths, promoting energy efficiency programs through their hydro utilities, and capturing and using methane gas from their landfills. Municipalities can also show leadership by

testing new technologies in partnership with energy or vehicle companies. And municipalities can go even further by publicly committing to air quality or greenhouse gas emission reduction targets in their official plans.

Let me give you some examples of the fleet programs in operation today in Ontario, some municipalities with the largest fleets and some examples from some with not-so-large fleets.

My personal favourite, Hamilton, was the first transit system in North America to put a natural-gas-powered bus into service, in 1985. In the early 1990s, our council voted in favour of replacing retiring buses with natural gas buses. Hamilton has since met its goal of replacing 50% of its transit fleet with natural-gas-powered buses. There are now 90 natural-gas-powered buses on the road in Hamilton and the Hamilton public transit authority, the HSR, continues a policy of purchasing natural gas buses as it retires its old gas-powered buses.

Cornwall initiated a process in 1994 to convert its bus fleet from diesel to natural gas. This was based on the lower cost of fuel and greenhouse gas emission reductions. To date, 12 out of Cornwall's 34 buses are now natural-gas-run. It is estimated that Cornwall saves \$13,000 per bus per year in terms of fuel costs. As natural gas buses cost \$50,000 to \$70,000 more than conventional buses, Cornwall is able to recoup this additional cost within four to five years.

There was no public natural gas fuelling station within the vicinity of Cornwall. The city had to build its own slow-filling station at a cost of \$250,000. The cost was significantly subsidized by volunteer engineering services from a local environmental committee. While the compression station has worked well, the absence of any backup filling station does put Cornwall in a vulnerable situation in the event of a breakdown.

The city of Toronto has a number of initiatives on the go to reduce their overall fleet emissions. With a fleet of 4,400 vehicles, not including transit vehicles, Toronto is under pressure to reduce their cumulative emissions. It has instituted a low-sulphur fuel policy so that all bulk purchasing for internal fuel sites must meet their low-sulphur standard. They are also involved in a series of low-emission testing programs. This includes purchasing several hybrid cars that use both electricity and gas to test them for reliability and emissions. Hybrid cars are significantly more expensive—in the range of \$8,000 per car—but with government rebates for low-emission cars, this difference is reduced to about \$1,000, making them a more affordable option. My own council committed last week to move 10% of our fleet to hybrid cars.

Toronto has also entered into a joint venture with Enbridge to test the reliability and emissions reduction potential of natural gas vehicles. Through the joint venture, the city has purchased nearly 100 natural gas vehicles, including pickup trucks and vans. However, the use of natural gas vehicles is limited by the lack of commercial natural gas distribution outlets. Because of their limited range, high-mileage vehicles must fill up two or three times a day in different parts of the city, but there

are areas of the city where there are no stations to fill up. That causes a logistical headache.

Toronto is also exploring a conversion program for their garbage collection fleet.

Toronto has also introduced a public awareness component to their emission reduction initiatives. They have developed a green fleet symbol, which is displayed prominently on low- and no-emission vehicles in their fleet.

Toronto is also supporting research and development with new technologies, particularly fuel cells. It is part of a demonstration project with Fuel Cells Canada. Toronto is confident that fuel cell vehicles will be on the roads soon, but the infrastructure to support them will not. So they are urging the senior levels of government to support both fuel cell research and development and supporting infrastructure.

To encourage more fleet managers to adopt similar policies, we must understand the factors they consider in their business decisions. All municipal departments are under tight budget control and, until very recently, public transit received no provincial or federal assistance. So an alternative that is going to represent a large additional upfront cost won't be very popular unless the payback time is reasonable. So the first factor is the payback period.

The payback on natural-gas-powered vehicles works best for high-fuel-consuming vehicles such as big vehicles that travel a lot. That means public transit vehicles and garbage trucks. That is because the cost savings are realized due to the cost of natural gas being lower than diesel. So the more you have to consume, the more you save. Over a number of years, that saving compensates for the higher cost of purchasing a natural gas vehicle and the higher cost of maintenance for natural gas vehicles.

#### 1020

For other municipal fleet vehicles, the economic benefit may not be realized so quickly. For example, a mid-sized natural-gas-powered vehicle may cost a third more than its gas-powered equivalent, and the cost savings from gas are lower due to lower fuel consumption.

We've heard from large municipalities that their business decisions regarding fleet procurement have been influenced by government rebate programs, so these are vitally important and should be expanded. Even more may be needed to convince municipalities to change their fleet-purchasing policies. The most direct incentive that could be offered to municipalities with transit fleets would be a funding program, even a revolving fund, that would provide low-cost or no-interest loans matching the additional cost of a natural-gas-powered vehicle and a payback period that is equivalent to the payback from lower fuel costs.

There is also an important education component that is needed. Some fleet managers remain leery of either natural gas or ethanol fuels since there is still concern that use of the alternative fuel significantly increases maintenance costs. There are also some questions about how



much cleaner these fuels are from conventional fuels, particularly in the absence of frequent maintenance. Costs of different types of fuels fluctuate with the market, so anticipated savings from one kind of fuel may not be realized over the longer term. So fleet managers are reluctant to commit. They need accurate information to make informed decisions that they can stand by, either from test programs or the ongoing performance of alternative fuel vehicles in other fleets. This is the type of information that municipal fleet managers can share with each other. Parenthetically, and not part of my prepared remarks, this is an opportunity for AMO and the province to partner in helping fleet managers and municipalities share information.

I'll turn now to landfills, which are a major source of methane gas, one of the most potent of the greenhouse gases. Landfill gas is a hazard for other reasons too. If not properly managed, it can cause explosions that can threaten nearby homes, so many municipalities already have landfill-gas-capturing systems, a network of pipes and wells under the landfill that recover the gas. In most cases, this gas is then flared or burnt off. This is done because it converts the methane component to carbon dioxide and water, which significantly reduces the climate change impact of the gas that would otherwise result from its release.

Rather than flaring it, the gas could also be used as a source of energy itself if it is piped to a nearby facility that can use the gas for heating or if it is channelled into generating electricity.

Ontario regulation 232/98, which regulates landfill sites, requires that for any new or expanded landfill with a volume of over three million cubic metres, the collection, burning or use of the landfill gas be a condition of its certificate of approval. The threshold of three million cubic metres was calculated as a reasonable size where the unit cost of establishing the recovery system per tonne of waste disposed was relatively low.

A 1999 study prepared for Environment Canada identified 35 landfill sites in Ontario that had the potential to capture landfill gases, particularly methane. At last count, 15 of these already had some form of methane-capturing system. The smallest one, the Glenridge quarry landfill in St Catharines, captures 760 tonnes per year of methane from 1.2 million tonnes of waste disposed. The largest, the Keele Valley site in Vaughan, captures nearly 80,000 tonnes of methane a year from 25 million tonnes of waste disposed. These sites will likely generate enough methane gas to capture up to 20 years after they are closed. Of these 15 sites, 10 of them use high-temperature flaring of the captured landfill gases.

In the largest of these sites, those that capture the most methane have developed utilization systems that use their captured methane either to generate electricity or to use the gas directly for heating. The economic benefits of methane utilization are highly dependent on the energy market price at any given time. In a 1999 study commissioned by Environment Canada, six sites in Ontario were identified as being economically viable for elec-

trical power generation, given the prevailing energy price at the time. Five out of six of those sites were already, or have since been, developed for gas utilization.

The city of Toronto is a leader in electricity generation from landfill gas recovery, with three of the five gas recovery and utilization programs in the province. It has a fourth, at the Thackery landfill, in the works. Currently, Toronto captures methane from its Keele Valley, Brock West and Beare Road landfills, and uses the gas to generate approximately 65 megawatts of electricity from the three sites, resulting in royalties of \$2.5 million per year.

The fourth gas recovery and electricity generating project operating in Ontario today is in the city of Waterloo. Its recovery and utilization project generates 3.5 megawatts of electricity, enough to power almost 3,000 homes. Waterloo negotiated a deal with Toromont Energy, where the company constructed, owns and operates an electrical generating station fuelled by landfill gas. Toromont footed the \$7-million capital cost of the generating station, and in return sells the power to Ontario Power Generation. Not only are there clear environmental benefits in terms of reducing greenhouse gas emissions; it is also a revenue generator for the region of Waterloo, which receives \$200,000 in royalties each year. The generating capacity is expected to grow as the landfill grows.

The Waterloo project is noteworthy because it is one of the earliest entrants in the province's nascent emissions trading market. Waterloo receives credit under the emissions trading scheme, which it in turn gives to Toromont to sell through the emissions trading market. This increases revenues for Toromont.

Now, we know that emissions trading is somewhat controversial, but the sale of credits could make some borderline projects economically viable in the future. Currently, the economics of recovery and utilization projects only make sense for the largest sites, as the recovery technology is costly. Depending on the price that emission credits can fetch on the emissions trading market, the cost-benefit of constructing recovery and utilization systems for some sites may improve. Companies would then be more willing to undertake gas capturing and utilization projects in return for the emission credits that they could sell on the market. The economic imperative is the best tool to lever changes in the private sector.

The fifth gas utilization project is at the Cambridge landfill. Its methane gas is piped directly to a neighbouring industrial user to generate 27 million BTUs an hour of heat production. Waterloo region, which owns the site, receives royalties amounting to \$35,000 annually. Piping gas directly to a nearby industry is obviously less expensive than building a generating station to produce electricity.

Peel region's 10-million-tonne Britannia site, which currently captures methane, is currently receiving proposals on the development of a utilization system.

While these are success stories that should be celebrated, there remain many more smaller sites where no gas recovery is taking place, let alone utilization. This is

primarily a function of the cost of establishing a recovery and flaring or utilization system. With the electricity market opening in Ontario in 2002, and greater access to the grid, we may see some electricity generating projects become more viable.

In terms of the benefits to municipalities, gas utilization, rather than flaring, has greater economic returns. Those sites that capture methane for utilization usually capture a much larger percentage of methane, because there is an economic incentive to do so.

As I have mentioned, municipalities, like any other generator, are at the mercy of the electricity market. The economic viability of an electricity generating project is entirely dependent on the price that can be secured from the purchaser, usually Ontario Power Generation. If OPG is willing to buy green energy at a higher price because it can sell it for a premium as green energy, say at seven cents a kilowatt-hour, then many more projects would be profitable. However, if the going rate is more like two cents per kilowatt-hour, very few projects will be viable.

Again, I'll depart from my notes for a moment. By fortuitous circumstance, I rode in from Hamilton today with a civil servant who tells me that Waterloo has negotiated a price of a little over four cents a kilowatt-hour, and that seems to be the break-even point for theirs. So I think that the kinds of numbers that make methane recovery viable are in the ballpark of what's achievable.

1030

One other factor that may work against more methane recovery, but is environmentally beneficial in other ways, is the trend toward reducing, through backyard or centralized composting, the organic component of waste that is landfilled.

Nevertheless, you've heard from the Ministry of Energy, Science and Technology that electricity generation from landfill gas could expand two- or three-fold over the next five to 10 years. Municipalities will work with the ministry and private companies to make that happen.

I understand you have already heard from Toronto Hydro and will be hearing from EDA later, so I will not go into more detail about other municipal green energy generation projects. But, as you know, with the market opening next spring, there will be easier access to the grid, and that will open up opportunities that municipal utilities can take advantage of in terms of developing their own electricity generating capacity.

As I mentioned at the outset of my presentation, there could be spinoff benefits from promoting alternative fuels like ethanol, biodiesel and biomass, particularly for rural agricultural Ontario. It feels like the time for these alternative fuels has come with Minister Anderson's commitment for further federal support for ethanol. I know the Ontario Ministry of Agriculture, Food and Rural Affairs is supportive, with Sunoco stations carrying ethanol-blended gasolines. With the USDA's bioenergy program committing \$300 million toward promoting ethanol and biodiesel, there is a greater potential in the development of a larger ethanol industry in Canada.

Ontario already has two ethanol refineries up and running, in Chatham and Tiverton, and a third one in Cornwall is in the works. You have heard from OMAFRA that a USDA report has calculated that a plant that produces 100 million gallons of ethanol creates about 2,500 direct and indirect jobs. That's a pretty good economic development plan.

There are also leading alternative fuel companies in Ontario: biodiesel company Biox in Oakville, and a cellulose-based fuel company in Ottawa. I believe you have heard of the economic potential of these products to the Ontario economy from them already.

Let me focus briefly on ethanol. Ethanol production means a new and expanding market for Ontario corn and grain. Already, 15 million bushels of Ontario corn go into ethanol production. Expansion of ethanol blends would mean direct job creation in rural areas and a shot in the arm for the corn agricultural industry generally. That is a win-win situation for Ontario: cleaner air and more jobs.

I hope my presentation has given you some idea of the importance of alternative fuels to Ontario communities and some sense of the breadth of emission reduction initiatives that are already underway in Ontario municipalities.

My prepared remarks end here, but I just wanted to refer briefly to the experience in my own community. We adopted a plan called Vision 2020 as our official plan in Hamilton, I guess a decade ago. One of the reasons we've been making the kinds of moves we've made to natural gas that have led to the single-largest increase in air quality in the country was because we had this vision, and we're working toward it. So as you're thinking through the kinds of things that you're doing here, first of all, thank you for doing it. But, second, I would encourage you to express for your colleagues in the provincial government a vision that talks about where we would like to get to, so that as you make law, as you legislate this, as you help municipalities move to where they want to get to, that vision of colour: how we move there.

Thank you for your time. I don't know if Pat's going to be able to stay, but I'd be more than happy to try to answer any questions you might have.

**The Chair:** Thank you very much for your presentation. It's an exceptional presentation, very practical, common sense, down-to-earth, the kind of thing we've been looking for. You've zeroed in on a lot of it, particularly emissions trading. The committee wanted to get a better understanding of it, and I think you've given us a better understanding than we received from some of the other organizations coming before us. Excellent.

**Mr Caplan:** If I can just add something to that, my son, of whom I'm very proud, is now working for Price-waterhouseCoopers Consulting in London, England, on issues around sustainability, and he and I had a long debate. I expected him to be opposed to emissions trading, as are many people who are strong proponents of good ecology, and he said, "Dad, we have to be practical. The truth of the matter is that the economic imperative is



there. If the end result moves us toward the goals we have, isn't that what's most important?"

My son, who is far more aggressive on these things than I am but has taken the time to study it—and he's smarter than I am—thinks it's the right thing to do, so I'll tell you that if Aaron Caplan says it's the right thing—

**The Chair:** Darned kids being smarter than us, eh?

**Mr Caplan:** Oh, believe me.

**Ms Vanini:** On that point, if the committee would find it useful, I would be prepared to pull together some of our municipal experts to give you the opportunity, and maybe some of your staff, in a more informal way to explore this emissions trading piece. There have been some good and practical examples that might just round out what you heard today and give you another layer of information and practice. If you wish that, we would certainly be more than prepared to facilitate—

**The Chair:** We will be carrying out extensive hearings in February. That might be a time when we could do that—whatever. We'll certainly keep it in mind.

We have about two minutes per caucus. We'll start with Dr Bountrogianni.

**Ms Marie Bountrogianni (Hamilton Mountain):** Welcome, and welcome to my neighbour from Hamilton, Marvin Caplan. First of all, congratulations on the Dubai award to the city of Hamilton. Marvin Caplan is a great proponent of the anti-smoking bylaws in Hamilton too. He believes what he says when he's talking about pollution and health care.

With respect to emissions trading, I would agree with you that it's something we can't ignore. Europe is way ahead of us on that score and we can learn a lot from Europe, but I'm looking forward to consultation from the municipalities on that issue as well. Your report was very comprehensive and complete. I have no questions.

**Mr Jerry J. Ouellette (Oshawa):** Thank you very much for your presentation. I have a couple of things. First of all, you mentioned the difficulty for fleet managers to monitor maintenance because of use of things—although you didn't say it, I think you were implying the ethanol issue.

**Mr Caplan:** There's some concern. I'm not an expert and I don't know if Pat can help us, but I think things have changed and I don't know if the level of understanding is there.

**Mr Ouellette:** But then at the closing, you actually did a bit of a promotion for ethanol, which is good—I believe anyway. My concern is, are they looking at other alternatives such as low-sulphur diesel as a policy—

**Mr Caplan:** Yes.

**Mr Ouellette:** —or low-sulphur gasoline as alternatives to come forward? Does AMO have a policy regarding those issues?

**Mr Caplan:** The policy piece is Pat's.

**Ms Vanini:** On the latter, we don't know, but we'll obviously be doing some more work along those lines and we can address those questions for you.

**Mr Caplan:** My understanding is that both Hamilton and Toronto have moved to having policies on low-sulphur fuels, yes.

**Mr Ouellette:** We've had considerable conversation about listing of old dump sites. Do you know if there's a requirement for listing in the municipalities? Do you think it's possible to start tapping into some of the old sites before any of the regulations came forward, and possibly even the smaller ones, where the methane could be captured in some form and transferred to another site for utilization and generation?

**Mr Caplan:** That's precisely the kind of thing we're talking about here. We believe methane continues to be produced. The answer to the first question is that I know that in my municipality we do not have as good an understanding of where old dump sites are. Yes, there is a resource there that could be used. The difficulty is that resource, when it is captured—I don't believe the regulations require it to be captured in other than very large sites, and I'm not looking for more expenses for our municipalities, but if there are ways of helping us to do it—the tendency is to always see municipalities coming to the province asking for more money. What I think we're looking for is help in finding ways of doing these things. We have similar constraints and sometimes some short-term help gets us through to some long-term savings for the environment and the municipality.

Pat wants to add something.

**Ms Vanini:** Just a plug for the Waste Diversion Act, which I believe is in the House for debate. If we could get that act through, that would generate some additional revenues for municipalities. That probably could help on further waste and environmental issues, so I would encourage the government to get this bill through. We've certainly worked hard on it. It's a critical demonstration of private-public partnerships in an area of waste management. I think it's an important symbol of moving forward on this matter. Sorry, I just had to do that.

**The Chair:** Sure. We're really out of time. However, if you have a quick comment or question, Mr Arnott.

**Mr Ted Arnott (Waterloo-Wellington):** We're working very hard to try and get it passed before Christmas, and we look to the opposition to assist us in that. So thank you very much for your comment.

**The Chair:** On behalf of the committee, thank you very much for coming forward and presenting us with an excellent working paper. Good luck in your next committee.

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#### CANADIAN URBAN TRANSIT ASSOCIATION

**The Chair:** The next delegation we have before us this morning is the Canadian Urban Transit Association: Michael Roschlau, president and chief executive officer. We have a half-hour and look forward to your presentation. What's left over after your presentation we'll divide between the caucuses for questions and comments.

**Mr Michael Roschlau:** Mr Chair, members of this committee, I certainly appreciate the opportunity to appear before you and to share with you some of the experiences we've had, specifically in the public transit sector with regard to alternative fuels.

Just a bit of background: the Canadian Urban Transit Association is a non-profit association representing the public transit industry across Canada. Our members consist of about 100 transit systems, from Newfoundland to the Northwest Territories to BC, and about 60% of those are in Ontario, just to give you an idea. Also members of the association are about 200 businesses that are suppliers and consultants to the industry, including some of the fuel suppliers, as well as about 50 affiliates that include a variety of government agencies and other research institutions.

I'm not going to spend a lot of time this morning telling you about some of the emissions issues that I'm sure you've heard about dozens of times in the last few months, but suffice it to say that transportation is a very important contributor to greenhouse gas emissions, as well as to air pollution. This year we had a record number of smog days in southern Ontario, and the work of this committee is clearly critical in terms of addressing that whole question of air quality and climate change.

By way of context, in Ontario, public transit carries about 700 million passengers a year and transit ridership in this province has been growing by a rate exceeding 6% in the past year, which is the highest growth rate in over 10 years. Transit ridership is on its way up. More people are riding buses and subways and commuter trains.

On a passenger-kilometre basis, bus emissions are almost four times less than car emissions. Clearly a bus emits more pollutants than a car, but if you factor in the average occupancy of that car, which might be about 1.2, and the average occupancy of a bus including the travel to and from the garage when they're not carrying people and so forth, it's about four times less. Travel by car emits about four times more pollutants than travel by transit. Probably the single greatest opportunity to reduce harmful emissions is to encourage a switch from automobile travel to public transportation, which is one of the things we're working on, and we're hoping governments are helping by working on it as well.

In fact, many regions and municipalities across Ontario—this is something AMO didn't mention—have goals in their transportation master plans of significantly reducing the modal share of automobile travel in favour of public transit. Some of them are looking to go from something like 5% to 20% in the next 20 years, doubling or tripling transit ridership and reducing the modal share of automobile travel by about 10%. That in itself would have a much more significant impact on air quality and emissions than any changes to technology. I'm not belittling technology and I'm going to spend most of my time on that, but it's just to preface the presentation with a recognition that modal shift and behavioural change is probably the most important and most significant impact we could have.

Imagine for a moment what our cities would look like without public transit—Toronto without the subway or without GO trains, Ottawa without the Transitway. We don't get the opportunity very often to see what that would be like. Thank goodness we don't. But three years ago in Hamilton, and I'm sure you remember this, there was a transit strike for about four months. It was right in the middle of winter and figures from the Ministry of the Environment—it was actually very interesting looking at their monitoring. Figures on air quality in downtown Hamilton showed an increase of 20% in nitrous oxides in the air during that period compared to the same period a year earlier. As I say, we don't like to have that opportunity or often get it, but that was a very interesting comparison, and similar observations resulted from monitoring in Calgary and Vancouver earlier this year when their transit systems were shut down for several months.

That's to set the context of the importance of transit and the potential that can be reached simply by encouraging more people to move out of their cars.

What about transit itself? Even though transit vehicles contribute less than 1% of the total emissions from transportation, there clearly is room for improvement. In our industry we've been experimenting for quite some time with a whole series of different alternative fuels. What I'd like to do is to give you some factual information on some of that experience, what some of those alternatives are. I will be leaving with you 25 copies of a paper that summarizes the majority of that for you, so there's no need to take copious notes at this point.

The vast majority of transit vehicles run on diesel fuel, 90% of buses and commuter trains. Subways, light rail and trolley buses run on electricity and there are some buses that run on compressed natural gas, but it amounts to less than 5% of the total fleet.

Just to go over those different fuels for a moment, there are five cities in Canada that use electricity as a major source of propulsion for transit. This is old technology. Electricity dates to the 19th century. Running streetcars on electric power was introduced in the 1890s. But it's still very effective. It's probably the single most enduring and still current form of propulsion in the world.

What are its advantages? It's zero emissions, absolutely no emissions at street level. Clearly in the bigger picture the emissions depend on how that power is generated, whether it's hydro, thermal, nuclear or indeed wind generation. We had a very interesting launch earlier this year of the Ride the Wind program in Calgary where the city's entire light rail transit system is powered from wind generation facilities in southern Alberta.

Some other advantages of electric propulsion: the vehicles tend to last a lot longer because there's less vibration. It's a single motor that's propelling the axle or the wheels. There's no engine in there that's rumbling or vibrating all the time. Electric power allows the vehicles to accelerate a lot faster, which is again important in the starting and stopping environment of public transit.



Finally, there's a lot less noise. The vehicles are a lot quieter, both inside and outside, than diesel or other fossil fuel powered vehicles.

Some of the disadvantages: first of all, they need to be connected to the power supply. You either need to have a third rail as in the subway or you need to have overhead wires that provide the power to the vehicle, because batteries on their own cannot supply and handle the amount of electricity that's required either to move a large vehicle of that nature or to last long enough until they would need to be recharged. As a result, there's a huge infrastructure cost, both in terms of installing that network and maintaining it. The biggest drawbacks are that infrastructure and the cost of maintaining that power supply.

The second example is natural gas. There's been a lot of experimentation. Probably the most significant of any alternative fuel in the last 20 years has been natural gas in transit. Six cities across Ontario are currently using compressed natural gas fuel for their transit vehicles: Toronto, Hamilton, London, Kitchener, Burlington and Cornwall. Some of those examples were mentioned by AMO as well.

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Advantages are that emissions are lower than diesel. They have been experiments in the US as well with liquefied natural gas, but those haven't really been very successful up here. The drawbacks are that the capital costs are higher, about a \$100,000 premium on the cost of a new bus, natural gas versus diesel. That would be about 25%. Maintenance costs are about \$5,000 a year higher. There is also a requirement for a larger spare ratio because the downtime is longer. If you have a fleet of natural gas buses, experience in those six cities in the last 10 years has been that those buses are out of service more than the diesel buses are. Some of that might be because it's a small proportion of the fleet, there are teething pains and so forth, but the experience to date is that you need a larger fleet to perform the same service because of that issue.

Finally, in order to be efficient, it needs a fast-fuelling infrastructure station. It's over \$1 million to install one of those. I believe that right now there are three of them in the province: one in Hamilton, one in London and one in Toronto.

Of some of the other perhaps more innovative and less-tested technologies at this point, we hear a lot about fuel cells; again, zero vehicle emissions. Hydrogen is the most common power source that generates electricity on board. Basically you have an electric motor that drives the vehicle and you're generating that electricity on board the bus through the hydrogen fuel cell process. There were three buses tested as part of an earlier generation demo in Vancouver. This was part of the Ballard-Xcellsis fuel cell program. All of this demonstration has now left Canada and moved to California and Europe due to lack of funding. There has been no further commitment to funding the Canadian fuel cell bus project. I think that even though this technology has

significant potential in the longer term, it won't be happening here in Canada; it will be in the US and in Europe. Clearly, at this point it's experimental. It's still unproven. It's extremely expensive. The vehicles are over \$1 million each, which is about two and a half times the cost of a diesel bus.

One of the other technologies that holds more potential in the near term is the concept of hybrid electric. One could argue that the fuel cells are a form of hybrid electric in themselves. This is really the best of both worlds. It significantly reduces the energy requirements through a regenerative braking system. I might spend a moment to explain what that means.

Transit is kind of unique in the sense that in most cities you have a lot of stops. The buses are starting up, accelerating, stopping again, braking, starting up, braking, starting up, braking. So in the duty cycle of these vehicles there is a lot of up and down. Every time a vehicle brakes, when you're putting on the brakes, you're creating energy, you're wasting energy that dissipates through heat. If there's a way of capturing that energy and reusing it, you're significantly reducing the energy requirements, and that's what regenerative braking does. It can only be done effectively with an electric propulsion system, so that when the vehicle slows down, the brakes are put on, it recaptures that energy through braking and feeds it back into a battery. The newer electric trolley buses run that way and the hybrids run that way. What you have is a battery that stores electricity, partly fed from the regenerative braking and partly fed from a power source on board. With a fuel cell, that's a hydrogen fuel system, but it can also be a small diesel engine or a small natural gas engine. The more immediate hybrid applications are the latter, where you would have a small clean diesel engine or a CNG engine in the back that's a fraction of the size of what a regular bus would have, through the benefit of the regenerate braking.

All three Canadian bus manufacturers are currently working on hybrid technology. At the moment the only prototypes are running in New York City. New York City has placed an order for several hundred of these. They are actually being built largely here in Ontario.

The biggest barrier is still the cost. It's about double the cost of a conventional diesel bus at this point. You're looking at about \$800,000 for a hybrid vehicle. In the medium term, I think there's great potential for this. Once the production runs become common, the cost will come down, but it's always going to be higher than diesel, I think. You're not going to get down to less than about \$600,000, even once it becomes more of a regular production.

The other two that I'm going to comment on are, first of all, biomass fuels, and lastly, probably the most common, clean diesel. On biomass, you're really looking at various options here: biodiesel, which is a mixture of vegetable oils and diesel fuel; ethanol, which is fermented sugar; and methanol, which is an alcohol-based fuel. There have been some experiments with these in transit vehicles. None has been particularly successful.

Advantages are that it's easy to use and they can apply to existing vehicles and existing engines. Drawback: there is some concern with some of these fuels about the corrosion that they create in the engines.

We had an experiment in Alberta a few years ago with methanol. There is still a lawsuit from the union going on about the toxicity of the fuel and how the vapours can be inhaled by the people working around them. Apparently there are people whose health has been adversely affected as a result of that.

There is a project with biodiesel that's just starting up in Montreal, and that's going to be very interesting to watch. They're looking at potentially converting up to 100 vehicles on a trial basis to this biodiesel fuel. We're very interested in seeing where that goes.

Finally, on clean diesel: as much as that term sounds unlikely, today's diesel engines are a lot cleaner than the ones of 10 or 20 years ago. The sulphur content in the fuels is coming down and is going to come down a lot more in future years. A lot of experiments are currently underway to retrofit engines with catalytic particulate filters to further reduce the emissions.

The problem is, how clean is clean and how low is low sulphur? Right now, the province of Ontario, according to my information, has the highest sulphur content diesel in the country. There is no low-sulphur fuel of the type that will be required by the EPA in the US available in Ontario today. The only Canadian supplier is Irving fuels out of New Brunswick, and they are selling the bulk of their production to New York state and Massachusetts. Some of it is available in Nova Scotia, but they're not shipping it to Ontario. The mainstream fuel suppliers—the Essos, Shells, Petrocans and so forth—are not currently producing any ultra-low-sulphur diesel fuel. When I talk about low sulphur, I'm talking less than 100 parts per million. It may be worthwhile having a look at what people mean when they say "low sulphur." How low is low?

In conclusion, and in terms of some analysis of all of this, right now and in the last few years, the problem that the Canadian and certainly the Ontario transit industry has been facing is one of a funding crisis. The average age of most city bus fleets in Ontario is 12 to 15 years; 12 to 15 years is the average age of our bus fleets in this province for vehicles that are built with a 15-year life cycle. In the US, transit funding is based on a six-year average age. Buses in the US are replaced after 12 years. Here that's our average age.

The US standards are important, because they represent 90% of the North American market for buses. So all the buses that are built in North America, and many of them are built in Canada—in fact, the three Canadian bus manufacturers build 80% of their production for export to the US. Because of the size of that market, all the vehicles are designed around the US standards, and the US standards are a 12-year life. That gives you a feeling of what we're getting and the situation we're in.

The industry is playing catch-up right now, major catch-up. The new funding announcement of a couple of

months ago is largely going to be geared to dealing with that deficit in infrastructure and renewing the fleets that have been left, in many cases, to get older and older in the last few years.

Just as an example, what are our transit systems doing? They're buying second-hand buses from Arizona, Texas and California that are 12 years old and they're putting them into service here for another five or six years. These are not the vehicles with the latest, cleanest engines. They're not vehicles that can run on the lowest-sulphur diesel fuel. Some systems are buying 18-year-old buses from Quebec that are on the scrap line. Toronto has done that. They bought 100 buses from Montreal, brought them over here and rebuilt them for another six years. That's the level of funding difficulty municipalities and their transit agencies have been facing.

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It's with that backdrop that we come and look at what's happening in those six communities that are using or that have had some success with natural gas, because the reality of the matter is, they're all going back to diesel, except for Hamilton. The final decision was yesterday at the region of Waterloo's council meeting where they decided on their next 10-year fleet acquisition program to move from natural gas to clean diesel. While to some extent that may be bad news, it's based on a strict evaluation of the cost and benefit of the life cycle of these vehicles: the difference in capital cost, the difference in maintenance cost, the difference in operating cost vis-à-vis the projected difference in emissions from clean diesel with particulate traps and catalytic converters versus a natural gas alternative.

What are the prospects? I think in the near term, five years, we're looking at clean diesel and natural gas; in the medium term, 10 years, we're looking at hybrid electric; and in the long term, 20 years, we're looking at fuel cells.

Again to sum up on the average capital costs of those technologies: a clean diesel bus, \$400,000 to \$450,000 today; a CNG bus, \$500,000 to \$550,000; a hybrid electric \$800,000 to \$850,000; and a fuel cell, between \$1 million and \$1.2 million. That's today's costs, today's dollars, with the technologies at the state of development that they're at today.

I didn't come here with a prepared recommendation. It's not something that was requested in the invitation. However, I have given it some thought, and given where we're at with transit in Ontario, any aggressive move toward alternate fuels in this province is going to depend heavily on what financial resources are available.

My recommendation would be that if we want to see a quicker move in that direction, the province would really have to implement some kind of an incentive for the transit systems and municipalities to invest more aggressively in more expensive technology. That would require some kind of a supplementary funding program that would increase the level of provincial investment in vehicles that use fuel sources other than conventional diesel. That would not only provide an incentive to build



up fleets and convert those vehicles, but would also help to promote the R&D industry in Ontario and across Canada that's working on these initiatives, because right now what little R&D there is is focused on the US and other parts of the world.

There would be two ways of doing that. One would be to increase the provincial share from 33% to 50% for such vehicles. Another way would be to find a way to introduce a program that would cover the cost differential between conventional diesel and alternate fuel vehicles in addition to the funding that's already in place.

Those are my comments. As I say, I do have some handouts that I'll be leaving with you. I'm more than happy to answer any questions you might have or discuss any issues you might be concerned about.

**The Chair:** Thank you very much for the presentation. Interesting statistics you have there for urban transportation and some of the challenges you're facing and we're facing as well.

We have about three minutes per caucus.

**Mr Steve Gilchrist (Scarborough East):** Let me start off by thanking you again for coming before us here today. You closed with perhaps the most relevant aspect of our deliberations as they affect urban transit, and that's going to be the cost implications, both to you and to us. With the announcement of the new funding the province is putting in, and hopefully the federal government will match us on it, would you be averse to receiving directions as to how fleets should be rebuilt even now? Leaving aside any new programs that might come in place, is there merit in suggesting that those funds be directed only to clean diesel or natural gas fuels or some other incentive?

**Mr Roschlau:** Clearly, the industry and our members are interested in optimizing the return on their investment, which is basically now, as I say, playing catch-up to replacing vehicles that are upwards of 20 years old. The trend has been to concentrate on the clean diesel alternative. I don't think anybody is really considering conventional in the old sense of high-sulphur, high-polluting diesel engines. I think that's almost a given.

**Mr Gilchrist:** Let me cut to the chase. If by bringing in new standards and by setting a clear direction, this committee then through Parliament had recommendations accepted that did mandate certain changes, are you still comfortable at 33% funding if we, as a result of leveraging the bus manufacturers and through bulk purchasing, got other technologies down to the same price as diesel, because obviously you would then have on the other side the offsetting savings in fuel costs?

**Mr Roschlau:** Maybe I'll preface my response with a comment that we're not really comfortable with 33% to begin with. It should be higher than that. Recognizing what the announcement was and that we're moving toward 33%, and we're looking forward to that day, to this point we still don't have confirmation on the details of that, but it's going to be difficult enough to make ends meet with 33% with the current cost of diesel vehicles, which are probably 25% more expensive than they were

five or six years ago, given that we've moved to a whole different vehicle design as well with the low floor that's now fully accessible to people with disabilities and so forth.

Really, the cost differential is going to be between the clean diesel options and the other alternate fuels. If there is a way of assisting on the design and manufacturing side of bringing the cost of those vehicles down to a comparable level to clean diesel, I think that would be wonderful. It would be a no-brainer to go for the hybrid electrics or even natural gas if the prices were the same.

**Mr Gilchrist:** If the cost issue was dealt with, you and your members would be prepared to accept the province laying out standards that mandated that the new technologies would be the only option?

**Mr Roschlau:** If there was no difference in the capital, maintenance and operating costs of the vehicles across those technologies, then we would be comfortable with that kind of requirement, yes.

**Mr Gilchrist:** Thank you.

**Mrs Bountrogianni:** Our previous presenter from AMO, Marvin Caplan, on page 5 of his submission said that the payback on natural—gas-powered vehicles works best for high-fuel-consuming vehicles, "big vehicles that travel a lot"—and I'm quoting in the language—the more that's consumed, the more you save. Therefore, over a number of years, that saving compensates for the higher cost of purchasing a natural gas vehicle. Would your analysis agree with that or would you dispute that statement?

**Mr Roschlau:** The analysis I'm quoting, which is based on the most recent study that was released last month and that was tabled at the regional municipality of Waterloo yesterday—which I don't have with me, but I can look into seeing if I can get the committee a copy of—looks at the relative cost differences between natural gas and clean diesel over the next 20-year life cycle in that community and suggests that there is still a significant premium to be paid for natural gas. I think the ultimate difference in the vehicle price after you subtract the PST rebate and any other advantages that are provided for natural gas vehicles is about \$65,000 on the purchase price plus about \$5,000 a year on the maintenance cost. Those are the most recent figures that I have access to. I know that some of the comments AMO referred to related to the experience in Cornwall. In Cornwall the natural gas vehicles they have are small, 20-foot minibuses that are not really comparable to the big 40-foot transit buses that we refer to. So there may be an issue there as well, I'm not sure.

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**Mrs Bountrogianni:** If there could be one specific recommendation you would give to us, what would it be?

**Mr Roschlau:** The one specific recommendation would be the one I mentioned, which is for the province to be proactive in compensating for the cost differential between conventional diesel and alternate-fuelled propulsion system vehicles.

**Mr James J. Bradley (St Catharines):** What is your opinion or evaluation of the research that has been done to this point in time and that is underway in terms of alternative fuels for public transit vehicles? That's going to have some effect, following on Mr Gilchrist's suggestion that the committee might recommend, or that the Ontario government might recommend, that there be a mandating of utilization of certain fuels. What is your view of the present state of research and development in that field nationally, provincially or internationally?

**Mr Roschlau:** It's certainly more advanced in other parts of the world than it is here. That, again, is largely as a result of the investment that other governments have made in R&D, which far outstrips anything we have done here in Canada. The fact that there has been a lot of work done in BC on fuel cells I think is a bit of a fluke of location. Ballard happened to locate there, happened to have some commitments and was getting some financial support from the province, which was supplemented by support from the federal government. A lot of that, as I mentioned earlier, has now moved elsewhere. I think that the business case in Canada is pretty weak. There just isn't the demand to support it. On the hybrid side, we're very fortunate that we have the three largest North American bus manufacturers based in Canada today. They may not be here tomorrow. The reason I say that is because of the size of the market. The market has been shrinking for the last 10 years, to the point where several of them have now moved their head offices to the US and are really questioning their future in Canada. I hope that's not a sign of things to come.

I think, clearly, signals from our federal and provincial governments are going to be critical. The announcement on September 27 was a very important one in terms of giving some of our manufacturing partners a bit more confidence about investing in R&D, and investing in particular in the hybrid R&D, which is the area that seems to have the greatest promise in the medium term.

**Mr Bradley:** We have the advantage in this committee, you'll be pleased to know, of being parasites, if we wish. That is, we can travel to other places—some members of the committee have had that opportunity and the committee will eventually have that opportunity—to look at other examples. I say we can be parasites in the best possible way, that we can get ideas from elsewhere.

I am intrigued by your comments and your evaluation that in Canada, so far the research and development hasn't been—I guess I'll understate what you said—what we'd like it to be. Perhaps one of the recommendations that will come forward—the committee will have to discuss that—will be in the field of research and development and what we could recommend to the federal and provincial governments. We're a provincial committee, but that doesn't prevent us from looking at areas where we think the federal government can play a role as well. In national research, one would assume that the federal government could play a role there as well.

I guess another question I have is, are you really going to have much choice in replacing vehicles in any event? I

know what the cost is estimated to be, but you're not going to be able to continue to use those old vehicles forever anyway. So won't you have to replace them anyway, and isn't that a great opportunity to start converting?

**Mr Roschlau:** It is, and to be honest—

**The Chair:** We're well over time, so maybe just a quick response.

**Mr Roschlau:** —we wish we weren't using them now. If we could provide the sustainable funding that would allow us to be replacing the vehicles on the cycle they should be replaced on, then I think a lot of that would be looked after. We don't want to be keeping our buses for 20 and 25 years. We want to be replacing them at 15 years. If we can get back to that kind of cycle in terms of keeping our fleets up to date, some of that would be looked after in the natural progression of technology.

**The Chair:** On behalf of the committee, thank you very much for coming forward with just excellent information, new directions and new thinking for us.

## COMMITTEE BUSINESS

**The Chair:** The next point on our agenda is committee business. It has to do with January, February and travel. The committee laid out a month or so ago suggesting that we travel the week of January 28 through February 1. We have a committee meeting during the following week on Wednesday and then we do public hearings the week of February 18 and 25. I understand Mr Ouellette had some difficulty with the January 28 week, but he was the only one who seemed to have any. As I listened and we started to look at other weeks, there were travel difficulties with other weeks. Maybe we should confirm that week as travel and have him catch up with us whenever he can.

**Mr Gilchrist:** I guess recognizing that there are any number of events and sites that we will want to visit here in Ontario, as well as possibly outside the province, I wonder if it might be as appropriate to ask individual members to notify the Chair of their availability on any given week through January and February. As site visits are developed, the Chair would have at his disposal all of the information he needs to make sure there's a good representation in attendance at any one of those site visits or specific conventions and events. If in fact we want to, amongst that, already schedule a specific trip, we could deal with that.

But I think at the same time it would behoove the Chair to have at his fingertips information so that you could react quickly if information comes in, as it will, about for example an opportunity to tour some of the hydrogen production facilities and research and development facilities. That's being put together right now by Fuel Cells Canada for the committee. Their plan is to do that at some point in January. Rather than continue to rehash and your having to phone or the clerk having to phone every time a new event comes up, why don't we simply give you our calendars and say, "Here are the



weeks we are available for any AFS business.” At that point, the only onus will be on you to then send information back to all members and to expect those members who have said they are free any given week to attend those site visits.

**The Chair:** The intent for this week in January was to visit Alberta, BC and California as a committee.

**Mr Gilchrist:** I understand that, but I guess I’m saying over and above that. I’m certainly aware of a number of other conferences, a number of other site visits, particularly here in Ontario. Given that we only have one more meeting, I’m just concerned that we may miss it or there may be some reaction if we come back in February and somebody finds out that there was a site visit and they didn’t get invited to it.

**The Chair:** If that week is in order—unless staff have some comments to make as it relates. Maybe that week isn’t good as far as getting to various—did you want to comment?

**Mrs Bountrogianni:** Yes, I’d like to comment on the original item, which was the week of the 28th. I’d also like to comment on Mr Gilchrist’s proposal.

**The Chair:** OK.

**Mrs Bountrogianni:** The week of the 28th, the Liberal members of this committee will—I’ll speak for myself. I’ll be available for the first three days, but I do know that we have Liberal business between January 31 and February 3. That’s our annual general meeting on that weekend.

**The Chair:** So you’re telling me that isn’t particularly good for the Liberal caucus.

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**Mrs Bountrogianni:** Well, not the whole week. Three out of the five days are good for me personally.

I’d like to also respond to Mr Gilchrist’s proposal. The only problem with that, Mr Gilchrist, is that you can keep a week free, but only for so long. Dr Galt constantly will be inundated, at least from my office and I’m sure from everyone else’s, with updated schedules, probably on a daily basis. That’s the only thing. You can keep a week free, but if it is not filled very soon, you have to fill it. If you can have a counter-solution to that challenge, I’d be happy to hear it.

**Mr Ouellette:** As I stated, I think I stirred the pot on this whole issue, that there were dates in there, and if I could accommodate and come out to see some of the events before or after a date that I couldn’t be in attendance, that would be fine. However, the week before that week or the week after is just fine for me, but I wouldn’t try to accommodate the committee to make sure I was there. It’s whatever the most can be in attendance for.

**The Chair:** We are finding out that week is bad for the Liberal caucus.

**Mrs Bountrogianni:** Just two days of that week: Thursday and Friday.

**Mr Ouellette:** I would think the week after then would be—

**Mr Bradley:** We have a provincial council or something like that.

**Mrs Bountrogianni:** On the weekend. It starts on the Friday.

**The Chair:** How does the next week strike everybody?

**Mrs Bountrogianni:** The next week is fine.

**Mr Bradley:** The next week looks good off the top of my head. I’m going to try to provide my availability for the committee. I know that switches, but I’m still going to try to keep you updated on my availability. We all know what happens for all of us. The day you commit to something, a better invitation comes in the next day.

**The Chair:** Am I trying too hard to have the committee go to several sites as a committee? Is that still sound?

**Mr Bradley:** I think that’s a good try. It’s worthy of—

**Mrs Bountrogianni:** You just cannot get all of us for all the dates.

**The Chair:** The week of February 4: how does that strike the committee members who are here?

**Mr Bradley:** Off the top of my head, that’s better.

**Mr Gilchrist:** If I may, it is certainly as good for me as the week before. My only concern is, every time we move things back, we continue to box ourselves in that much more.

**The Chair:** But we do hearings the last week in January.

**Mr Gilchrist:** Oh, you’re suggesting we would then switch and have hearings instead. OK. As long as we are not losing time in the picture here, then that would be fine.

**The Chair:** Sorry about the ones who are not here, but at least we have five of the regular committee members here out of nine. Let’s confirm, then, and those whom it doesn’t work for will have to catch up to us or whatever. Do you have a problem?

*Interjection.*

**The Chair:** What has been suggested is that we leave on the Sunday night so we are in Calgary first thing Monday morning. The first three days of that week of January 28 would be hearings because you’re off on the Thursday for your conference.

**Mrs Bountrogianni:** Thursday, Friday and Saturday.

**The Chair:** OK. The first three days of that week; the next week, February 4, we will travel with whoever can travel with us. How many days of public hearings should we be setting aside? Then I’ll get the subcommittee going.

**Mr Gilchrist:** I think we have the flexibility right now to allow everyone who wants to contribute a chance to contribute. Without getting silly, you could set your first range of dates. But then depending on the response we get, given that we are not stepping on anyone’s toes in an intersession and that the regular committees that will appear are not going to be empowered to hold hearings, room 151 will be available. Might I suggest both that we make plans to occupy that room for all of our hearings

and, secondly, as an absolute given, that every single day, or if it can be coordinated into specific days, video-conferencing access be afforded to every single person in this province who can make their way to a community college or any other site appropriately equipped so that there is no need for the expenditure of funds to travel around the province. On the flip side, there is an infinite geographical reach to this committee. People from Manitoulin Island to Moosonee would be able to share their views, something that committees traditionally just never had the opportunity to do before.

**The Chair:** Your point is very well taken. We will confirm three days in the week of January 28: Monday, Tuesday and Wednesday. In the week of February 18 we will confirm four days, Monday through Thursday, and then whatever else might be needed after we advertise. We'll let the subcommittee deal with the rest of it.

**Mrs Bountrogianni:** I have another item after this. We'll adjourn quickly.

**The Chair:** OK, so Tonia will try and collect four of us together for a subcommittee meeting Monday or Tuesday.

**Mrs Bountrogianni:** Are we finished with the scheduling?

**The Chair:** Yes.

**Mrs Bountrogianni:** Mr Parsons couldn't be here—he's in ODA hearings—but he would like permission to attend a conference in Boston in early March: the Building Energy Conference. It deals with such issues as one quarter of building energy being used to heat water. I'm sorry; I'm just trying to read from his notes. The approximate cost is \$3,800.

**The Chair:** Comments from the committee members? Agreed? OK, it's agreed. The motion has passed.

**Mrs Bountrogianni:** I'll tell him; thanks.

**The Chair:** Do we have any feeling where we're at financially? Do we have any feeling of what it's going to cost us to travel for that one week?

**Mr Gilchrist:** You're looking at about—you should be able to get a circle airfare, because we're going in a continuous direction, for somewhere in the neighbourhood of \$1,200 to \$1,300 if we book far enough in advance. If members are going to travel, I think perhaps we should institute a rule that, to keep costs down, those decisions are made at least two weeks before the trip, because there's a dramatic difference in airfare. Again, given that we don't have any other conflicts in the House, I don't think that's unreasonable for this specific trip.

**The Chair:** The probability is it's going to be two days per stop: one to do some hearings and one to go and see, which means it could be a Saturday in California. Therefore, if we come back on the Sunday, you would save significantly by staying over that Saturday night.

**Mr Gilchrist:** Absolutely. We've got to make sure that we've looked at all of those options. In fact, you might even want to consider flying out on Saturday—

**Mrs Bountrogianni:** That would be difficult.

**Mr Gilchrist:** —but that poses a problem for you; OK. Then it really has to be the case that we stay over the

following Saturday night. The airfare difference would more than pay for the one day hotel factor. It would be infinitely greater.

**The Chair:** So this is six days, seven days really, until we get back. Will you notify the other three who are not here of that: of where we're at, to save that Saturday night and not to commit yourself if at all possible?

We'll get the subcommittee together to have a report for Wednesday morning.

**Mr Gilchrist:** I think we're agreed on Mr Parsons; I don't know whether you're still inviting debate on that.

The only other issue is, what sort of different protocol will we need once we aren't having weekly meetings? Because if events such as that come up, let me offer that a canvass of the subcommittee might be an appropriate solution.

**The Chair:** It could be. The other could be in the memo that Tonia's going to send out: if anybody has ideas of travelling before the first of February, to get it before the committee next week.

**Mr Gilchrist:** The only problem with that is if you just plain come across an opportunity. For example, at one of the open houses in the building here last week from—I can't even remember; I think it was the manufacturers and exporters—Ford formally invited me and the committee to visit its research and development facilities, not just in Canada but in Dearborn, Michigan. These sorts of invitations could crop up at any time. Recognizing that if we are going to take a significant portion of February, potentially, for more hearings—depending on the sort of response—and then our response to those hearings, it almost follows that January is the time we're going to have to make those sorts of side trips here in Ontario in particular. I just throw it out for the committee's consideration that when that happens, the subcommittee—

**The Chair:** Put a motion on the floor and we'll see if it can get through.

**Mr Gilchrist:** I move that after next Wednesday, the subcommittee will deal with any requests for travel inside or outside of Ontario.

**The Chair:** Further discussion?

Those in favour? Those opposed? The motion is carried.

OK, anything else?

**Mr Ouellette:** So the trip—it's two days in each location we mentioned?

1130

**The Chair:** This is what staff are finding out. If we're going to sit down and talk to people, then—it isn't just around the corner, some of the places we'll want to go to.

**Mr Ouellette:** Can we as committee members get some input as to which sites would be available to visit? I think it's pretty much impossible to visit all the sites listed here in two days, but there may be some specific things of interest to certain individuals that, even if we had to take half of the committee to one location and the other half would go to the other, it would be far more productive.



**The Chair:** Please feed that in directly to Tonia.

**Mr Gilchrist:** Chair, let me just add, apropos of that, that Fuel Cells Canada has already indicated they will coordinate all of the fuel-cell-related manufacturers in the Vancouver area and facilitate one meeting site where all of the manufacturers will come to us.

**The Chair:** I think we have to be careful, when we're being offered various things from private companies, that we don't accept something—I'll leave that to Tonia to keep an eye on—that might give the impression that we're supporting one company over another, or we might feel obliged down the road.

**Mr Gilchrist:** A valid point, but in this case in fact I think it would be, if anything, assuring just the opposite, because their commitment was that every single manufacturer would be represented if we gave them that amount of notice.

**The Chair:** Jerry's just going to give you an example of what he has sorted out if we stop in Alberta, and then give you some indication of how the travel will flow.

**Mr Jerry Richmond:** These are just some preliminary ideas. You'll see a short memo was distributed to you. I canvassed a number of potential sites, companies and government agencies. It's certainly not exhaustive and if the members have other places or offices that they've had contact with, I would suggest you provide that to Tonia, because if we're going to be in the area and you've read or heard of other things—the list is certainly not exhaustive. I've tried to canvass some of the major ones. Fuel Cells Canada is listed there and Mr Gilchrist has had other contact with them.

Just in terms of a possible schedule—and this is subject to further deliberations—if the committee, say, went out west for a week, as Mr Gilchrist indicated, those sites are sort of in a circle. If we left for Calgary on the weekend before, whatever Sunday, we would avoid wasting a half day travelling out west. In Calgary we could probably schedule a day of hearings if we stayed in a downtown hotel. From the preliminary contact I've had with officials, they seem to be more than willing to come to us, which would probably remove any sense of corporate conflict.

Out west, they are in both Alberta and Vancouver, the notes indicate—Edmonton being the provincial capital,

other government offices are in Edmonton—but officials are more than willing to travel down to Calgary. It's only 180 miles and I got the impression they would do that on their ticket. They do it all the time. There's a similar situation in BC, with Victoria being the capital on Vancouver Island. Officials are more than amenable to, not swimming across the Strait of Georgia, but coming over to Vancouver for any meetings. They seem to be more than amenable; they do that all the time. So the geography can be worked out.

So I think we could fit in, reasonably, a day of hearings in Calgary, with some of the key players. They're into wind power; I've got some contacts with the coal industry, that issue has cropped up; Alberta government officials. So a day of hearings. The committee could tentatively go down the next day, if we started on a charter bus early in the day, to see the wind farms in the Pincher Creek area. Then, if we got back to Calgary, it's only a hop, skip and a jump over the Rockies—it's a little over an hour flight—so we could get to Vancouver the next day, which would be the Tuesday evening, then have a day of hearings in Vancouver, and then a day or a day and a half later get down to California. So we might even be able to fit it into five working days and then the committee could debate whether to come back the following weekend or whatever.

It seems doable, and tentatively the officials, even if they're not in those three cities, seem amenable to travel, or maybe we can make some electronic arrangement for them to be videoconferenced in. But certainly Edmonton, being the capital, and Victoria—there's no problem there. In California, some offices are in other locations, but maybe we could work something out that if we were in the state capital of Sacramento, officials from other locations would just come to us. That's my sense of it and, subject to additional committee requests and Tonia doing the scheduling, I think it would work.

**The Chair:** Possibly for our next meeting you might put together a tentative schedule to have a quick look at, and a possible cost, so we have some idea where we're at.

If there's nothing further, the committee is adjourned until next week.

*The committee adjourned at 1136.*

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Second Session, 37<sup>th</sup> Parliament

## Assemblée législative de l'Ontario

Deuxième session, 37<sup>e</sup> législature

# Official Report of Debates (Hansard)

Wednesday 12 December 2001

# Journal des débats (Hansard)

Mercredi 12 décembre 2001

**Select committee on  
alternative fuel sources**

**Comité spécial des sources  
de carburants de remplacement**



Chair: Doug Galt  
Clerk: Tonia Grannum

Président : Doug Galt  
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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Wednesday 12 December 2001

Mercredi 12 décembre 2001

*The committee met at 1010 in room 228.*

## NAVIGANT CONSULTING LTD

**The Chair (Mr Doug Galt):** I call the select committee on alternative fuel sources to order. Welcome, Navigant. The committee members have received your package. I'm not sure how many of them have had a chance to go through it, but we look forward to your presentation. Thank you very much for all your hard work. We look forward to your comments and thoughts.

**Mr Mitchell Rothman:** Thank you very much, Mr Chair. I'm currently having a small battle with technology and we're hoping to have this projector working in a minute; if we don't, we do have hard copies and we'll just start with that. So while I'm struggling, John, do you want to just start with the introduction now?

**Mr John Dalton:** Just so we're clear in terms of the document that we're going to be speaking to today, it has "Select Committee on Alternative Fuel Sources" at the top and it's a PowerPoint presentation, two slides per page, with a date of December 12.

What we will be covering today is a presentation which really is providing a summary of our findings, as well as our policy recommendations. In particular, what we'd like to do is really just review at a high level some of the discussion we had just over a month ago, on November 7, with respect to the criteria and methodology that we'd be using for our evaluation. Then we're going to jump right into the policy recommendations.

Initially we're going to focus with respect to the high-level recommendations, policies that from our perspective will have a beneficial effect on alternative fuels and technologies in general. There's a number of these that we've identified. Then we're going to focus on the specific fuels and technologies that we shortlisted, and then, as part of that presentation, go through the status of development, economic and technical potential, review barriers, and then, based on these barriers, talk about policies that we're proposing to address the specific barriers.

We'll just give Mitch one final chance to see if we can make technology prevail.

**The Chair:** We do have the paper in front of us.

**Mr Rothman:** Yes. There's a magnificent storage device called pen and paper.

**The Chair:** Something I didn't ask you at the beginning and I should have for the sake of Hansard, if you'd just state your names so that we have them properly recorded.

**Mr Rothman:** I'm Mitchell Rothman with Navigant Consulting.

**Mr Dalton:** John Dalton, also with Navigant Consulting.

**Mr Henry Sandels:** Henry Sandels.

**Mr Sam Mavalwalla:** Sam Mavalwalla.

**Mr Rothman:** I'm going to be doing most of the presentation this morning, but all of the people here have worked quite a bit on this report. As you can tell from the report, we have done quite a bit of work on it.

I just wanted to revisit—I'm now on slide 3—what we had talked about as the objective, which was that we were going to be looking at policies and measures that will reduce the primary demand for fossil fuels in Ontario. Once we had screened the long list down to a short list, we were taking the three-stage approach that's listed there. We first identified them, then looked at what the technological and economic potential is, then identified barriers to that development and then looked for policies to overcome those barriers.

Let me define just briefly what I mean here by "barriers." We were looking for measures that are now economic or can become economic. When I say "economic," I mean have lower cost. Sometimes we meant, at least informally, lower total social cost, that is, lower cost, including the cost of environmental damage, than existing standard technologies. In some cases, they have lower monetary costs than existing standard technologies. If that's the case and they're not being implemented, you have to ask the question why. If here's something that's cheaper and more environmentally friendly than the existing standard technology and it's not being implemented, why is it not being implemented? The reasons for that are what we have called, and what is called in this kind of analysis, "barriers." So we have looked for the barriers. We have looked for policies, then, that will overcome those barriers, because they are preventing the implementation of economic and lower-impact technologies.

Now on slide 4, we followed that process. We have come up with a number of policies, some of which, as John said, are policies that can affect a number of technologies or fuels, some of which are policies that

affect only specific technologies or fuels. We have put them into this report. We've made those as recommendations, but we haven't had any time for a systematic stakeholder review of those policies. So most of the recommendations are framed essentially as suggestions. For most of the recommendations, we've said, "Here are some policies the government could pursue," but we haven't said, "Navigant Consulting recommends," partly because we haven't had the time to do that stakeholder consultation and also because any policies are within the scope of the government, not within the scope of the consultant.

So when we make those recommendations, and I'm now on slide 5, we have looked for policies that will overcome the identified barriers, and we have done a fair amount of survey of policies in other jurisdictions in order to see what's worked there and to use them as guides.

I've already said that we talked about two kinds of policies: general policies and focused ones. The four general policies are: performance standards, interconnections and net metering, renewable portfolio standards and a public benefit fund or, as it's sometimes called, a systems benefit charge. So now I'm just going to go through talking about those four kinds of overall policies.

Performance standards: for many kinds of energy-using capital equipment, there are various standards of performance. For almost any kind of electrical appliance, for example, there is a CSA requirement. The Canada Standards Association has to certify it for safety. You can't sell electrical appliances in Canada unless they have been CSA-certified. For many other appliances, there are additional performance standards that relate to their energy efficiency; they relate to other kinds of performance factors. The province and, to some extent, the federal government have enacted these performance standards.

There are also performance standards on things like buildings. There are energy efficiency standards on things like buildings. There's something called the MNECB, the model national energy code for buildings, which is a federal standard and to which Ontario, to some extent, subscribes and has enacted. So there are standards both for equipment and for building envelopes. Those affect the energy usage across a wide range of technologies. The province already has a well-developed set of standards and has been the leader in setting standards and performance standards, both in buildings and in appliances. Our recommendation is simply that that continue; that the province continue to be a leader in setting standards. Of course, the province of Ontario can't be too much of a leader. You can't set standards that manufacturers can't meet or that builders can't meet. So this setting of standards is a process of balancing between what is achievable and desirable; so what is a push and what is pushing beyond the possible limit.

1020

The second thing we wanted to talk about in general was interconnections and net metering. Many of the

kinds of alternative fuel sources that we've been talking about are alternative sources of electrical generation fuels. Frequently, these are relatively small applications, and many of these small applications face the requirement that they interconnect with either a distribution or a transmission system. When they do that, the transmission or distribution system owner has certain technical standards that they need to meet in order to make that connection. That's quite legitimate. They have to set such technical standards. They are interconnecting to a synchronously connected electrical system. Any kind of equipment attached to that system, especially any equipment that might be putting energy into that system, has to meet certain technical standards, has to be synchronously connected. You can cause all kinds of problems by having equipment that doesn't meet technical standards connected to the system.

On the other hand, the technical standard that you would need to connect a two-megawatt small hydro station or a 500-kilowatt solar panel, which would be actually less than that, should be lower than the technical standard you'd need to connect a 600-megawatt combined-cycle gas turbine. So there needs to be awareness, some respect for the size and relative cost of the interconnection. That hasn't always been true. So we are recommending that there should be a legitimate technical standard that is sensitive to the relative sizes of the equipment being connected. Such a standard is currently under development, and we recommend that the government consider adopting it.

Now, the requirement for that standard is a function of the Ontario Energy Board, not of the Ontario government directly. The requirement, as it stands, is contained in the distribution services code. The distribution services code is issued by the Ontario Energy Board. So it would be the Ontario Energy Board that would have to act in this area of interconnection standards.

Each of the two things that I've just talked about are policies that don't impose high costs on consumers, if they impose any excess costs at all. The next two policies, the renewable portfolio standards and the system benefits charges, would impose additional costs on consumers. A renewable portfolio standard would set a standard as to what fraction of the electricity consumed in the province comes from renewable sources. That's a policy that is widely adopted now. It was proposed in the Clinton energy plan. It's been proposed elsewhere. It's under discussion in other provinces in Canada and has been adopted in several states in the United States as well. It's a policy that is often seen as a way to ensure that restructured electricity markets continue to respond to environmental concerns, concerns about the total environmental impact of electricity generation.

It raises the price. An effective RPS must almost by definition raise the cost of electricity. If the renewable energy is economic, it would be being installed. So if the RPS is an effective constraint, that is, if it forces generators or consumers to do something they would not otherwise do, it must mean that it costs them more



money. So the RPS does have a cost to it, and that's one reason why we've said again here that this is a suggestion to the committee to consider and to discuss further with stakeholders.

The benefits are the obvious benefits that are listed on this slide, and now I'm on slide 9. There are a number of design issues that would need to be addressed in order to implement an RPS. I don't know that I necessarily need to go through all of those. They're on slide 9. The important ones are that there is almost inevitably an argument about the definition of what is renewable. In Ontario, for example, I would expect some discussion about what size of hydroelectric development would be considered renewable, and I expect that would likely be a lively debate.

Similarly, there would be a lively debate on what's the base level of renewables from which you start the renewable portfolio standard. So if you say, "Well, we already have 10% or"—if you want to count the existing hydraulic system—"25% of our electricity coming from renewable resources," then if you set a renewable portfolio standard of 10%, nobody has to make any changes. So the definition issues, the level of the base, the level of the increase, are all issues that are going to be important if we want to implement a renewable portfolio standard. Again, this is a kind of policy that would reasonably require some consultation with stakeholders.

Finally, the system benefits charge. The system benefits charge is simply a charge placed on electricity users. It can be used to fund anything you want. In some places it has been used to fund purchases of renewables where there isn't a renewable portfolio standard. In our case we're suggesting it be used to fund energy efficiency initiatives that require direct investment. The system benefits charge, because it's a charge placed directly on the electricity consumed, does raise cost to consumers. It isn't free, but it does provide reduced environmental impacts. That describes those four general policies.

On slide 11, I'm going to go through this short list of the alternative fuels and technologies. For each of them, there's a brief description of the technology, its status and where it's going, some description of its barriers and then recommendations that are more specific to that policy.

The first is biomass. If you look on slide 11, we have three subcategories of biomass: animal waste, wood waste and refuse-derived fuels. We found a number of technologies that do energy recovery from those fuels. Right now the main use of such fuels is in the forest products industry. Most pulp and paper mills have some kind of hog boiler and they may do cogeneration with it. They use wood waste or pulp and liquor in some way. There's not a lot readily available that isn't already used in the forest industry, and there may be some threats even to that given the changing nature of the way the forest resource is being used.

We look for growth from agricultural and municipal solid waste. Obviously, municipal solid waste is a rich source of all kinds of things, including controversy.

**Mr James J. Bradley (St Catharines):** Absolutely.

**Ms Marilyn Churley (Toronto-Danforth):** You caught our eye.

1030

**Mr Rothman:** Surely using municipal solid waste as a resource rather than a burden would make a great deal of sense if that can be done. One of the ways it already is done of course is through the use of landfill gas, which is the methane gas generated in landfills. But we look beyond that, to converting these waste products, either agricultural or municipal. Solid wastes can be converted. There are technologies available—they're not currently economic—to convert them into solid fuels and then coal-fire them in a coal boiler. There are ways to convert them into gas through digester processes and then use that gas either as a heat source or as the source of a generation fuel.

We looked at those technologies. Let me go back. When I said we looked at barriers to the implementation of economic technologies, we also looked at the question of whether the technologies could, in the near future or with some development help, become economic: are there technologies that are lower impact that could become economic in the near future? We also looked at those and looked at the barriers to that economic development. The biomass fuels are an example of that. Farm-based digester systems, for example, are very close to being economic. There are still some technological and economic factors that are barriers to them, but we have recommended here that those barriers can be overcome by funding some demonstration projects, by creating some demonstration projects for some of these farm-based digester systems which will help solve the animal waste problem.

The waste-to-energy plants: we suggested that the waste stream be separated. The problem is that some of the digester plants require a reasonably clean source of organic material—not clean, but reasonably clean—a source of organic material that's relatively free of non-organics. They can digest the organics, turn them into methane gas, use the methane gas and get out of that a reasonably high-quality fertilizer, but the current waste disposal infrastructure doesn't separate such high-quality waste from other waste. So that's the biomass section.

On cogeneration, we've talked about cogeneration, both large and small. There's a relatively recent comprehensive cogeneration report which was completed for the Ministry of Energy, Science and Technology, and we drew heavily on that report. The barriers to cogeneration include the connection requirements that I talked about from the distribution utilities, those technical requirements. The economics and environmental performance of cogeneration—many cogeneration facilities are attractive enough that we would expect that, without further direct policy, a large fraction of the new investment in electricity generation in the province would be cogeneration facilities.

One of the things we're observing is that those cogeneration facilities do require access to a competitive

electricity market. The province is already committed to opening a competitive electricity market by May 2002, as the energy minister has announced. We simply recommend that cogeneration would be encouraged by staying that course, by opening that competitive market.

We talked already about the interconnection standards. A way that the government could directly impact cogeneration would be to say that, if there are new government-funded facilities, institutional facilities in particular—hospitals and schools—the government would make a commitment that it would accept any cogeneration project in such facilities that is economic. That might mean that the facility would have a slightly higher upfront capital cost, it would have lower operating costs, and it would have lower total emissions in its operation. So we suggest that the government could consider undertaking a project like that, and the two institutional sectors I just mentioned, schools and hospitals, are in fact prime candidates for cogeneration. Many of the schools, most of the universities and many of the hospitals in Ontario already have cogeneration facilities. We're recommending that the government continue that, and support that development with a policy, if necessary.

We talked about geothermal as an area. The one geothermal technology that came through was ground source heat pumps. Ground source heat pumps are a reasonably mature technology. A ground source heat pump works by putting pipes in the ground and circulating a heat-transfer agent through those pipes. The ground then becomes a source of heat in the winter and it also acts as a coolant in the summer. It uses electrical energy but it gets a return of about three to one. You get about three times as much effective energy out of the system as you put electrical energy in.

Ground source heat pumps, in many applications, especially for new homes and in areas where the house has enough land to be a source to put the pipes into, work a lot better when you're building a new house, when you've got the land all torn up and you're just building, as opposed to retrofitting them. They're a very economic technology now. Barriers to that implementation include having an infrastructure of people who know how to install them, how to maintain them, and having architects, designers and others aware enough of the technology to want to incorporate them.

We think that ground source heat pumps are a potential candidate for what is called in this literature a market transformation. A market transformation occurs when an alternative technology essentially becomes self-sustaining—I'm on slide 17 now, by the way—when the alternative technology becomes the standard technology; when we no longer have to have policies to get them to put those technologies in place, but rather that becomes the technology of choice.

Natural Resources Canada already has a significant ground source heat pump program which is modelled on a market transformation approach. We suggest that the actions the province takes toward market transformation for ground source heat pumps be coordinated with that federal action.

Next is small-scale hydro. For most small-scale hydro the issues are finding a site that can be developed and being economic. When we talk about small-scale hydro, here we've defined it as less than 15 megawatts of capacity. One of the effective ways of dealing with hydro development in general was the water power task force, an industry task force which created itself and very successfully drew together stakeholders, made a number of policy recommendations, discussed those policy recommendations both with the government staff and with ministers and has gotten some policy changes that will make the use of small-scale hydro much more economic.

There has long been a problem with municipal taxation for hydroelectric facilities. Municipal taxation is typically based on the value of the building or structures rather than what's inside those structures. Since hydroelectric generation depends very heavily on the construction of a dam, the share of the structure and the total capital cost is much higher for hydroelectric generation than it is for other forms of generation. So hydroelectric facilities were paying many times the municipal taxes that fossil-fired generation, for example, was paying. One of the results of the water power task force was to change that taxation basis from the value of the structure to a gross receipts tax, to make that a much more fair tax policy.

#### 1040

The remaining barrier we've identified is the environmental assessment process for small hydro, and we've recommended that the government consider establishing a class environmental assessment procedure for small hydro.

The second bullet is a more specific recommendation. In remote northern communities, there may be some places where small hydro could be put into place. It would probably not replace the existing diesel generation but could supplement it and displace the use of diesel fuel, which is brought in at quite high cost. We've suggested that the government consider capital support for the small-scale hydro applications in those remote communities where it is economic. It doesn't take as much to be economic in those communities because of the very high cost of the fuel in those communities; it's the high transportation costs.

We looked at a number of different solar technologies. Most people, when you think of solar technology and you're talking about energy, think of photovoltaics, which is the direct conversion of sunlight to electricity. That's an attractive technology but very expensive; not economic now except in a few remote locations. But some of the other solar technologies are quite economic. Solar water heating for residences, for pools, can be quite economically attractive. Solar process heating—I'll come to exactly what that technology is in a minute—and a passive solar building design are also quite economic technologies.

We didn't talk much about photovoltaics. Our interconnection policy would affect good, connected photovoltaics as well as other small electricity generation, but



most of the potential for photovoltaics, as I said, is currently in remote locations.

Solar water heating, however, does have some real attractions, especially for residential pool heating and some kinds of commercial uses. I'm now on slide 21, by the way. Solar process heating in industrial settings typically means that if you are using hot air in an industrial process, you can use a solar heater. It can't provide the air at the temperature that you need for your process, but it can preheat the incoming air, saving a fair amount of fuel in the solar heating process. It doesn't replace the existing fossil fuel process, but it replaces some of the fuel used in the existing fossil fuel process, and that can be an economic application.

In slide 22, we talk about what the barriers are for building-integrated photovoltaics. Again, they are the two overriding policies that we talked about not needing interconnections. For solar water heating, it's an information and cost problem: lack of consumer awareness and the fact that the consumer looks at high capital costs.

Passive solar designs are simply ensuring that when you design a building, it is designed without having to have equipment in it. The building is designed in such a way as to get maximum solar heating in the winter and reduce solar impact in the summer to reduce the air-conditioning load. Those are designs that are relatively easy to adapt. It's a function of ensuring that architects, builders and others involved in construction consider that.

So the first two policy recommendations I've already talked about; the third is that we think the solar hot water programs could benefit from information programs and some subsidies that essentially would be demonstration programs to show people how well they work; and for the solar process heating similarly, these are information programs.

We suggested that the building code could incorporate a requirement that passive solar designs be considered. That sounds kind of severe, but in effect any good architect designing a building now thinks about, what are the southern exposures, what are the northern exposures and what are the effects of the sun and the sunlight impacting on the building? This requirement would simply say that there is a requirement that you think about that in terms of the energy use of the building in addition to the use of the building in terms of views and how the occupants use the building.

Wind power is a technology that is kind of on the verge. There had been almost no activity in wind power in Ontario until quite recently, partly because, as the second bullet on slide 24 says, the grid-connected costs for wind turbines in the United States are about five to 10 cents US a kilowatt-hour, which is about 7.5 to 15 cents Canadian a kilowatt hour. The current production costs for coal-fired generation and incremental production costs from an existing coal-fired generation station are in the neighbourhood of two to 2.5 cents a kilowatt-hour US, and the costs of a new combined cyclo-gas turbine are in the range of five cents Canadian a kilowatt-hour. Wind is close, but it isn't there yet.

What is happening in wind is that those costs are coming down quite rapidly. The technology is improving rapidly and the costs are coming down rapidly, so we are suggesting that the barriers now relate both to environmental assessment and to land use, because of the problems of siting wind power.

We note, of course, that the federal government, just a couple of days ago, took a clear step toward supporting wind power by putting in a 1.2-cents-a-kilowatt-hour production incentive. In the federal budget, the government promised that new wind installations on or after April 1 of next year will receive an extra 1.2 cents a kilowatt hour from the government on top of whatever they can sell their power for. In the budget, the federal government called on the provinces to participate in this program.

The RPS would be an important incentive for increasing wind power. We recommend that there be a comprehensive land use planning framework in property tax treatment for wind turbines. The property tax problem again is similar to that of the hydroelectric generation.

Another piece of this is that the Ministry of Energy, Science and Technology is currently developing a labelling program so that consumers will get a label with their electricity. The label will say what the source of the electricity was, what its emissions are and give consumers information about the environmental impacts of the electricity they're buying. When you do that, when consumers can see what the source of their electricity is, it can give some consumers an incentive to try to buy their electricity from sources that have lower environmental impacts, of which wind is one.

#### 1050

I'm now on slide 26, on alternative transportation fuels. If we look again at slide 11, we talked about two alternative vehicle fuels: ethanol and biodiesel. Ethanol is produced either from grain or from cellulosic materials and is blended with refined petroleum products to make a fuel for small vehicles. There currently is production of ethanol for vehicle use in Ontario and there are tax incentives currently for ethanol in Ontario.

Barriers to the use of ethanol are that under current conditions it is not economic and would require further development to become economic. Also, there are infrastructure problems, both in the transportation of the ethanol and in the requirement for engine modifications if engines are to burn more than 10% ethanol. Again on slide 26, E10 is a mix of 10% ethanol and 90% refined petroleum products; E85, therefore, is 85% ethanol, 15% refined petroleum products; and E95 is 95% ethanol and 5% refined petroleum products.

Grain ethanol is what's currently produced. Cellulosic ethanol is what is expected to become the ethanol of choice, but requires further technological development. The reason for moving toward cellulosic ethanol is that it's likely to be a better source of fuel in terms of the crops that can be grown for it and in terms of using waste or other materials to produce the ethanol.

In slide 27 we are now looking at the policy recommendations for alternative transportation fuels, including ethanol. Here again, this is a technology that is not currently economic and so we would suggest promoting R&D to help this technology become economic.

Biodiesel, as the name implies, is a fuel made from biomass that can be burned in diesel engines. It can be blended with a petroleum diesel fuel in any ratio and simply burned in standard diesel engines. It does create some problems in those engines in terms of maintenance. The people who are running the biodiesel have to know that they're running biodiesel and have to make some adjustments to their maintenance schedules.

There is already a biodiesel test going on that the Toronto hydroelectric system is doing, but with biodiesel now the question of exactly how much benefit it provides is not clear because there is some discussion in the industry about exactly how much biodiesel emits and therefore how much it reduces sulphur emissions.

Our policy recommendations are that there could be some research to help resolve that controversy over what the net environmental impact is and also that the government could think about converting some of its own vehicle fleet to use biodiesel. That would help develop the infrastructure that's needed. And there might be some tax incentive to accelerate the recovery of those capital costs that are related to the development of an infrastructure for biodiesel fuels.

Slide 29: we have looked at transportation applications for fuel cells. There are a number of different kinds of fuel cells. The ones currently being talked about are proton exchange membrane fuel cells. What fuel cells have in common is that they use hydrogen in a non-combustion technology to produce electricity, some heat and relatively low emissions. But fuel cells require hydrogen as a fuel source. They can either have an on-board source of pure hydrogen, which means they have to get the hydrogen from somewhere else, or they can have on-board reformers which restructure a fossil fuel—typically gas—into hydrogen and carbon. The hydrogen is then processed in the fuel cell.

Currently, the size of both the fuel cells and on-board reformers is large enough that they are really practical in large vehicles like buses. It's hard to use them in small vehicles like individual cars, but there is a great deal of development currently going on on fuel cells for both applications.

Right now fuel cells are not economic. If you look at the third sub-bullet on page 30, the manufacturing cost of a fuel cell is \$300 per kilowatt, which is six times higher than the comparable manufacturing costs of an internal combustion engine. Fuel cells are not economic. We would recommend that the government should look at this technology and start to think about promoting further development and demonstration when the technology is coming closer to being economic, and perhaps the government could consider funding fuel cells as demonstrations for the transit fleet that it already funds at least part of.

Finally, we want to talk about energy efficiency. Energy efficiency means doing something with a more energy-efficient technology, which means providing the consumer with the same end use of the energy—the same amount of lighting, the same amount of home heating, the same amount of clothes washing, the same amount of dishwashing, the same amount of computer technology, the same amount of air conditioning in an office building—but using less input energy to do that.

There are essentially two ways you can think about energy efficiency. Most of the time we're talking here, we're talking about energy efficiency in buildings, meaning residential or commercial institutional buildings. You can improve the building envelope, which will affect how much energy is used for space heating, or you can improve the equipment within the building, which will affect how much energy is used to perform the functions that the equipment in the building has.

I'm now on slide 32. The barriers to energy efficiency are very heavily information costs. In order to put in a more energy-efficient technology for any individual user, that user has to gather information about the availability of the technologies, about their technical performance, about what is needed to install them and about what is needed to maintain them. Frequently the costs of gathering that information make doing the energy-efficiency investment uneconomic. Frequently also, just the idea of the costs of gathering that information means that nobody gets started.

So information costs are a large barrier to energy efficiency for individual users. But information, once it's gathered, can be made freely available to everybody else who wants to use it. So if information is gathered, either by a company or by governments, they can then apply that information across a wide range of users and make it available to a wide range of users, reduce their information costs and help them to implement economic energy efficiency technologies.

#### 1100

The first sub-bullet on page 32 talks about split incentives. Those occur when the person who makes a decision about the capital cost isn't the person who has to bear the operating cost. If an engineer or a contractor is building a building and has to choose what the HVAC system—the heating, ventilating and air conditioning system—will be and has incentives to keep the building's costs down, they may choose an inefficient system. When the building owner gets it, they're now stuck with an inefficient system that's going to cost them a lot in energy bills. If they and a contractor had simply gotten together and said, "OK, we'll put in a more energy-efficient unit," we could have saved money for the owner all told. Those barriers are addressed by information campaigns and by energy efficiency codes and standards, which we've already talked about.

The last three bullets on page 32 talk about what Ontario is already doing. Let me explain briefly the last bullet. DSM stands for demand-supply management. It typically refers to a set of programs where utilities pro-



mote energy efficiency options for their customers. Those have benefits for people like distribution utilities because by reducing the growth rate of demand they may reduce their requirement to build new capital. If their existing customers can use less electricity, then the existing system can be used to meet the needs of new customers and they don't have to build new distribution equipment, new distribution capital for that purpose.

We also—and I'm finally on slide 33—have suggested for energy efficiency that we continue to monitor standards and tighten those energy efficiency regulations. Finally we looked at the water power task force and its success. There is also a wind power task force, similar to the water power task force, which has gone through the same process. It has looked at the question of wind power, what the barriers are, what policies would help it, and has produced a report which it is currently discussing with both the staff of the Ontario government and with ministers. We suggest that an energy efficiency task force might similarly be able to look at the entire range of energy efficiency measures and make recommendations with a multi-stakeholder task force that would help energy efficiency overall.

Finally, the last slide is a little hard to read, but it's a set of tick marks which show a general sense of what policies we have recommended for each of the technologies or fuels on the short list. Reading across the top of that column for you, the first is—the policies are on the columns. "Financial incentive programs" is the first one, "Government programs" is the second one, "Standards" is the third one, "RPS" is the fourth one, "Systems benefit charge" is next, "Developing the infrastructure" is next, then "Research and development" and then "Information programs." The tick marks simply tick off which of those general policies we have recommended for the fuel or technology application areas which are down the rows. That list is exactly the same as in, I think, slide 11 in this presentation, so I don't need to read it.

Thank you very much for listening to me. We're all here and happy to take questions.

**The Chair:** Thank you very much. It looks like a fairly thorough report. We appreciate the effort. We'll go around maybe 10 minutes per caucus, see how the time remains and go from there. We'll start with the official opposition.

**Mr Ernie Parsons (Prince Edward-Hastings):** I'm very impressed with your report. I'm trying to think how to phrase it or to ask it—I appreciate this is an excellent overview of the alternative fuel sources. I'm still wondering whether it's possible to have some comparison with, for lack of a better word, conventional fuels. I still struggle, and I hear the problems, as to what it actually costs to produce electricity using conventional systems. I would dearly love to find out how much electricity produced by coal actually costs.

**Mr Rothman:** So would I.

**Mr Parsons:** I'm sensing you can't put that number out quickly.

**Mr Dalton:** When you say "actually costs," I assume you're implying the social costs should be evaluated as well as the cash costs?

**Mr Parsons:** Yes, that's right.

**Mr Dalton:** One of the points we make in the report is that one of the policies the government has pursued is the development of allowance markets for sulphur dioxide and oxides of nitrogen. What that's going to do is largely internalize the control costs for those specific pollutants within the market price for power. That then raises the issue of what's the social cost. How does that control cost compare to the social costs? We recognize that we haven't fully reflected that.

Then there's the other issue of what about these other emissions that there aren't allowance markets for? To get more specifically at your question, our feeling once again is that once these allowance markets are in place, there's going to be a truer reflection of these social costs. It might not be a full reflection of these social costs. But in terms of the question of what are these full social costs associated with electricity generation, there have been very comprehensive reports done on that. From our perspective, it kind of went beyond the resources we had. I'd be happy to identify some of the sources that I would suggest it's worth looking at to give you a range. Unfortunately, that's all you're going to be able to get—a range in terms of these costs. We can do a very good job in terms of what is the economic cash cost, but it's much harder to put specific dollar values in terms of these social costs.

**Mr Parsons:** Second question: you've identified a problem I'm only too aware of, that often a mechanical engineer on a project, on a building doing the mechanical systems, has absolutely no contact with the ultimate firm that's paying the bills for it. Do you have a suggested solution? You bring these two quite separate groups together because the pressure is on the mechanical to bring in the cheapest job.

**Mr Rothman:** One of the easiest ways to handle that is to have performance standards for the building that the engineer then knows he has to meet. Another suggestion, another way, is simply information programs, simply letting the engineers know, letting the architects know, what kinds of alternatives are available. We didn't look up the numbers, but we can't be talking about an audience of more than a few thousand people, maybe 5,000 or 10,000 people in Ontario, who make these decisions. Information is available about what sorts of technologies can be used. Some of this stuff is reasonably well known, some of it isn't. That's why in our policy we're saying we need focused, targeted information programs that will get to that targeted community and ensure that they know what the alternatives are. Also, if we're thinking of commercial and institutional development especially, it's a relatively small number of people who are the developers and, again, it's getting the information to that targeted community.

The third piece is that for some of these technologies, but not all of them, you need specialized training, either

to install or to maintain them. Clearly, that kind of training is within the purview of the provincial government to ensure that its education and training system is turning out people qualified to deal with these more energy-efficient technologies.

1110

**Mr Parsons:** This may sound maybe a little silly or absurd, but the US government requires that appliances have a rating system on them in terms of energy efficiency. Yet our biggest consumers of power are the hot water systems in the buildings themselves. There is no requirement that I know of that we produce an evaluation, an effective running cost, for a building. When I chaired a school board, we put in a ground-source heat pump system. It was not easy to get approved. It was the most expensive system by far, and it will never happen again, although it's a tremendous success. The operating costs are phenomenally low, but the up-front capital costs that have now been paid back will be such a barrier that I don't think any publicly funded institution will be able to do that again. Yet it was a great investment. It's one very small accomplishment that I'm very proud of. It would be interesting to me if we could bring in a system that would actually rate building efficiency, so you could say to the owner, "Here's your white label. You can tear off the front door after you move in, but here's what the building will cost you."

**Mr Rothman:** I agree. Just as an aside, we recognize exactly that problem, that for government-funded buildings, there is heavy pressure on capital costs and not necessarily as much recognition of the ultimate operating cost. This report explicitly says in a couple of places that we recommend the government be willing to accept all such energy-efficient applications that are economic, that will save money over the course of the building, and be ready to pay the up-front capital costs if that's what's required.

When we define "economic," we've suggested that it be defined using the government's cost of borrowing as the discount rate, rather than a commercial one because it's the government putting the money up, so the government is going to have to borrow that money. If these energy efficiency or alternative technology investments are economic at that discount rate, then the government could institute a policy that would recognize that and be willing to pay that up-front capital.

**Mr Parsons:** Do I still have time?

**The Chair:** A couple more minutes.

**Mr Parsons:** Many years ago, I can recall Hydro paid a grant to a homeowner if they put in an electric furnace or if they bought a new refrigerator. Have you any sense whether that sort of approach would work if we went the other way, say if you went to a heat pump rather than an electric furnace, if you went to this particular level of insulation even though it's far above the building code? Any sense of whether it's in the public good to do that?

**Mr Rothman:** Those programs of Ontario Hydro's were justified on the basis of the nature of the electricity system at the time.

**Mr Parsons:** Yes, it would be reverse to what Hydro paid for at that time.

**Mr Rothman:** The obvious set of organizations that could deliver such programs and that might well be eager to deliver such programs now would be the local distribution companies. Most of them now have two sets of activities: a regulated set of activities, which is simply delivering the service of connecting wires to customers and maintaining those wires and that service, and a non-regulated activity, which typically looks for energy-related activities that they can sell.

One of the things we've talked about, for example on the ground-source heat pump market, is that that would be an obvious activity for distribution utilities to undertake because it's economic; they can make money selling it if it is economic and it would provide them with profits and create energy efficiency. Similarly, the distribution utilities would be obvious candidates for doing the kind of demand-side management programs or energy-efficiency programs that you are talking about.

I think the issue for such utilities and for such programs is whether or not they are economic. If they are not economic on an out-of-pocket cost basis, then consumers won't install them in general unless somebody gives them some incentive. The question is, who would have that incentive and how would you fund it if you wanted to do those programs? How do you decide which programs deserve to get an incentive based essentially on your first question, which is what is the total social cost we're avoiding? Why would anybody give an incentive to an activity that has a total social cost higher than its alternative? Those programs, as they were administered by Ontario Hydro and a number of other utilities in North America when they were trying to answer those questions, ran into huge problems of all kinds: administrative costs, free rider costs, definitional costs. That was a real problematic system.

**Ms Churley:** Thank you for your presentation. Mr Chair, I'm going to have to leave soon to go and speak to a group about this very committee.

**The Chair:** With some fresh information.

**Ms Churley:** That's right. What I want to do before I leave is ask more process questions, because I'm not clear on where we go from here with this report. Obviously, in your slide 4 you say your policies have not been—you haven't had an opportunity, and obviously we understand that, for a stakeholder review. I think one of the big questions we still have to answer, and you asked the question here as well, is the definition of "renewable." For instance, you raised energy from waste as perhaps being one of those. There are some forms of energy from landfill etc that I think we would all agree could be considered renewable, but there are some discussions we need to have around what we consider to be renewable, and some of the suggestions here, in my view, aren't. I guess that's for another time.

But I'm concerned about some of the suggestions around energy efficiency and conservation and some of the other areas as well. Where do we go from here? We



don't have information about, for other jurisdictions that are much further advanced than we are in energy efficiency and conservation, how we pluck some of these policies out and just get moving on them, some of the things that used to be done, how we bring back those kinds of government support and incentives.

My question perhaps might be more directed at the Chair in terms of this report we've got here. We still have a lot of questions around which policies we're going to be recommending. Where does the committee go from here with this report?

**The Chair:** I appreciate your concerns. I haven't had a chance to read the whole report, but starting on page 80 there's an overview of policy instruments. Have you had a chance to go through that?

**Ms Churley:** I haven't had a chance to read the whole report yet.

**The Chair:** It may be in there, what you're looking for. I felt the same way when I first started reading the report, but I haven't got into this chunk, and maybe they can help us with that.

**Mr Dalton:** In the policy discussion, we attempted to initially provide a high-level overview of what are the various policy tools available to the government and then review specific examples and, where possible, where there was sufficient information, to kind of review the effectiveness and success of these programs. In addition, with respect to each of the write-ups for the fuels and technologies, there was also discussion in terms of policies that have been promoted in other jurisdictions designed to really promote these specific fuels and technologies. We hoped to really provide that information here.

**Ms Churley:** OK. You're suggesting that if I read the report a little more closely than I have, some of my questions will be answered, from your perspective. Is the work of this firm now complete in terms of the contract?

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**The Chair:** As I understand it, essentially, yes. We might want to ask more questions later on.

You do plan to come back to the committee again?

**Mr Dalton:** We could. I don't think it was in our contract.

*Interjection.*

**The Chair:** Oh, from this to finalize it?

**Mr Dalton:** Right. The thought was that we'd be using this meeting to finalize the report. Some good ideas have already been put forward which will be reflected in the final draft that you see of this report. We also recognize that it is a draft and that, as we get further ideas, we'll bring those forward in the report, though with a 120-page report we feel that our job is pretty much done.

**Ms Churley:** So again, just in terms of process, then, as we go through this today and ask questions, the committee may at the end of this meeting make some suggestions—I guess my question is, your work is complete except for finalizing this report? Not having had an opportunity to read it thoroughly, which I really

haven't time to do but want to do, Mr Chair, I'm wondering what period of time we have to respond. Did you need the response today for any changes or issues we might like to see reflected?

**Mr Dalton:** No, we don't. I would hope that before everyone breaks for Christmas we get e-mails saying, "What about this? What about that?"

**The Chair:** Any response from members who don't get a chance to mention it today, if they write to you before Christmas, and then you'll finalize the report in the new year?

**Mr Dalton:** That's correct. If there was anything that we felt was beyond the scope, then we would get back and suggest that we really don't have the time or resources to answer those questions.

**Ms Churley:** That it's beyond your scope. OK, that's helpful.

**The Chair:** I also appreciate, Ms Churley, your concern about where to from here, and I'm concerned about that. I've been discussing that with research and we have some thoughts for down the road.

**Ms Churley:** On a point of order, because I have to leave now, there is this—

**The Chair:** There are some date difficulties here?

**Ms Churley:** There's the report from the subcommittee on committee business.

**The Chair:** It's Wednesday night that we'd go out, not Tuesday night.

**Ms Churley:** OK, and otherwise it's all the same?

**The Chair:** Essentially, yes. That's the block of time.

**Ms Churley:** OK.

**The Chair:** How much time we spend in each location will depend on the resources there that we want to see and listen to.

**Ms Churley:** OK. But those dates have been agreed to by—

**The Chair:** Going out the night of the 6th—are now firm.

**Ms Churley:** OK.

**The Chair:** I've heard nobody scream about it, so they're now firm.

**Ms Churley:** Nobody has screamed yet. OK. Thank you.

**Mr John O'Toole (Durham):** Thank you very much. A good review, as far as my ability to say that.

I want to repeat a couple things that I don't see enough in here myself. This is not criticism, it's something you've explained to Mr Parsons: the whole issue of costs. It's the starting and ending point to all of this, whether it's direct or indirect subsidies.

When I look at all the pages here, including the pages dealing with—I think it was on page 29 or whatever. I look at nuclear, for instance. I'll give you one example. The cost of the debt, the cost of the capital, how they're going to eventually deal with radioactive waste and shut down the plant and secure it: none of that is in here. It wasn't even in the old one under Ontario Hydro. They said it was, but it wasn't.

I sat for 18 weeks with I think Mr Bradley or Mr Conway or somebody on that NAOP, nuclear asset optimization plan. It's pure bullshit. We're paying for it; I don't care what side of the table you're sitting on. So the cost issue is not—and I think it's the nut that they don't want to crack, because it makes wind and everything else look unsustainable or unaffordable.

If you could help us there, that would be helpful. Ernie has addressed that; I think everyone here has. When you look at the whole equation of demand-supply, the DSM model, and all those, they all depend on cost.

I think I've made my point. I think I'm just repeating what has been said a hundred times here.

The other one is the DSM. It ties into the whole metering and net metering issue. I guess I have a question on that. I want to maybe go to the slide specifically.

Right now it appears to me in a billing sense—am I on the right track, is what I'm asking. Right now, technically, the price goes down as the usage goes up. That's almost the reverse, like so much per kilowatt. I think it's related to, the more you use, the less you pay per kilowatt. As a consumer—if you want to control demand, increase the cost. That's simple. If I use that extra gallon of hot water, if I leave the TV on—and start to educate people that the more you use, the more you pay. It should be a kind of relationship between demand and cost. I don't think that's the current pricing policy and invoicing policy, or at least it used not to be. That's part of that whole thing, and it also goes back to the whole issue of cost.

The other one, and it's too bad Ms Churley is not here, the energy-from-waste policy: I don't think there's enough political will there, whether it's on the nutrient stuff or however you use the energy-from-waste stream. Once you dedicate that waste stream—I don't think we've looked clearly enough at Europe. Their policy is energy from waste. Holland I think specifically is the most advanced. But somehow there's no appetite here for that. That is a problem, because all of the waste—what are we? You're engineers; I'm not. The only difference between my throwing something called "landfill" in a hole in the ground or burning it is time. The only thing is time. One takes 50 years, and one takes 50 seconds to incinerate it. But you still end up with the same bag of residual leachate and all the rest of it, whether it's in the form of gas or sludge.

I don't think there's enough there and I think it is one of the options. We're generating more and more waste all the time and all we want to do is hide it in some forest or in some hole in the ground in northern Ontario. That's just not intelligent. How do we do that? You do this as consultants. I think it's tragic that we're avoiding the real issue of energy from waste.

But it's the whole reversal. We're dealing with a bill—Mr Bradley knows now, Bill 90. I think it's the Waste Diversion Organization. That's all predicated on having a waste stream and a whole strategy of the three Rs or the four Rs or whatever it is. I'd be interested in your response on that.

The last one I have is on the technology side. I think we're underscoring and underestimating the technology equation, not that I'm capable of saying my motive for that, except to say that it's an exponential equation. Change feeds on change. Having worked in that industry for a number of years—hydrogen will be the fuel of the automobile within 10 years. I am not qualified to say that, except that GM just bought 25% of Hydrogenics. And they're dealing with the PEM, the membrane issue. They have an on-board what they call rack reformer of some sort for a mid-sized automobile. It will be in production, I'd say, in less than 10 years.

**Mr Bradley:** Reformer?

**Mr O'Toole:** Mr Bradley would like to—actually, there are some good things about reforming, but they're just a few things. I think we've underestimated the potential of technology, even with wind, the efficiency of wind power, as they get these generators more and more efficient and tied into the technology of timing, storing energy in forms of hydrogen or some other way of storing it and sort of peaking out the load costs.

This to me is a literature review. I'm not trying to be smart. We're not engineers or scientists here, but I've heard most of this before in some form or other, almost completely. I don't think we've spent enough time on the whole equation of cost.

If we can't make the argument, we won't change one policy. OPG is motoring ahead. Ron Osborne made a key speech on future directions for market opening two weeks ago. It's worth reading. Their commitment to sustainable energy forms is growing their divestment down to 35% of generating capacity under Bill 35 or something—I forgot the bill. They're mandated, but they're going to go into other companies. They're going to be called WindPower Inc or whatever they're going to be called, but they will be generating other forms of energy with other partnerships for sure: wind, and probably solar, if you take its potential in Canada.

**1130**

Anyway, those are just some observations. If you want to respond, that's fine. I appreciate the amount of material that has been covered here. If you look at this and our report, there are some pretty substantive kinds of analysis and a framework for bringing four key recommendations to whoever is the government. I put to you that the key one of all is how you're going to subsidize this transformation. You have a term here that you call it: market transformation. That's money, period, however you subsidize it: through land tax, through capital tax, through depreciation, through whatever.

**Mr Dalton:** I think the comments are all right on. We will do a better job in terms of trying to further develop the information that's available with respect to the social cost associated with electricity. I think we need to recognize, though, that it's going to be a range of estimates. It's well beyond our scope to put the final decimal point in there, but we will bring forward some of that information.

I think the one thing we're going to be seeing with respect to opening the wholesale market here in Ontario



is that there's going to be greater price transparency, as an economist would say. The cash costs are going to be much more obvious and transparent. That'll help in terms of making some of these investment decisions. One of the challenges I think we have, though, is these social costs that aren't fully reflected in the generation of electricity. To what degree do we want to pursue policies that promote the development of alternative fuels and technologies? We've put forward a couple of proposals, RPS being one. I think those really can be justified on the basis of the fact that there is this disconnect and that the social costs aren't fully reflected.

**Mr O'Toole:** The one key here is that all of this is cast against a bigger policy question, and that's Kyoto. Actually, if we want to be pristine in terms of social costs, it'll be easy to achieve, because we won't be doing anything. Do you understand? The whole economy would collapse. If you tax it into non-competitiveness, it'll be as clean as you want. It'll be called Ethiopia or something, because there won't be anything. There will be no smokestacks and nothing happening. There'll be no money, so there'll be no economy. We can't all operate computers. They consume huge amounts, all these green forms of business.

So my point to you is that really Kyoto is driving this sucker at a very high level. If we impose some kind of tax to get to this accord agreement, and now it costs four times as much to build a car or any other manufactured good, then they'll be building it in Mexico and we'll be buying it at twice the cost.

**The Chair:** Would the committee like to do another round or have you had enough questions? Do you want to do another 10-minute round per caucus? OK, we'll do so.

**Mr O'Toole:** I won't participate.

**Mr Parsons:** Marilyn said we could have her time.

**Mr Bradley:** A couple of observations while you are here today: I must say I am, to put it very modestly, much less enthusiastic about the prospect of burning garbage to produce energy than my good friend Mr O'Toole is, recognizing what that means in terms of the waste diversion people wanting the same products or the same waste as those who want to burn them, in many cases. We won't get into the argument about it. I just wanted to put on the record my conspiracy theory that somehow there is an attempt somewhere along the way to get burning garbage back on the agenda. I hope it wouldn't be the vehicle of this committee, I think there are enough progressive-minded members of this committee that that won't happen, but it is a concern of mine that there are some people who are itching to get those incinerators going again. I must confess a bias, and it is a bias, as you confess your bias, against that.

I also want to indicate that I think that Mr O'Toole has identified one of the major problems, and that is going to be determining costs and who's going to subsidize, and that transition from the traditional fossil-fuel-dominated economy that we're in now to an economy that is based on, indeed, alternative fuels. I don't have the same doomsday outlook at the international agreements as does

my good friend Mr O'Toole, because I think they can be achieved. I've listened to all the arguments that I just heard Mr O'Toole make in years gone by. If successive environment ministers and those responsible in other ministries were to listen to those arguments, we would have had no progress made to this point in time. There are always people, particularly in the industrial sector, who are going to tell us why we can't achieve what we want to achieve. I'm not demeaning the comments of Mr O'Toole, but we have listened to those before. I agree with him that it takes an international effort. We have to persuade one another to participate. But simply because in Bolivia they may not be moving to the same regime environmentally that we are, that we should hold back I think would be unwise.

I know that my colleague had some questions or comments that he wanted to add, or perhaps that she wants to add as well.

**Mr Parsons:** I had asked mine.

**Mr Bradley:** You were asking one more question, it seemed to me, at the very end.

**Mr Parsons:** Yes. Rolling back to my question about incentives to be energy-efficient: the problem as I face it, if it's biomass or if it's groundwater heat pump, what you're doing with that is actually saying to the distributor, "We don't need natural gas any more and we don't need oil; we're going to really reduce our electricity"—I can't understand where the distributors would have any incentive to helping you go offline; quite the opposite. Hydro used to give you an incentive to use more electricity; they're certainly not going to give you an incentive to use less electricity right now. So who has to assume the role of saying that there has to be some sort of initiative to make that energy-efficient building?

**Mr Rothman:** Just a couple of things on that. First, we are talking here about the competitive retail arms of the distribution utilities, not their regulated arms. The competitive retail arms are primarily engaged in selling other services than electricity. For some utilities they will probably be selling electricity, but they will be selling it along with a host of other products, including gas and energy efficiency. They'll be selling anything where their expertise and customer contact can help them make a profit.

Second, I would expect that over a fairly short time the tariffs that electric distribution utilities collect for their regulated businesses would not depend on how much electricity they sell, how much electricity moves through the wires, but rather what the size of the wires' connection is. That's already the way the transmission tariffs are set. They don't depend on how much electricity moves, but only on the size of the system that's needed to move the electricity, because that's what determines their costs.

Finally, I think the competitive retail arms of the local distribution utilities might well be a set of companies that would be natural suppliers of energy efficiency programs, because they don't care in the end what they sell as long as they can make a profit on it.

### The Chair: Any further questions? No?

1140

**Mr Jerry J. Ouellette (Oshawa):** Being that this is what we affectionately call the "silly season," I haven't had an opportunity to fully review this. However, when you came before us and we specifically asked for one review which was the low-flow hydro generation based out of British Columbia, what were you able to find out and what details did you bring forward in regard to the low-flow generation that's taking place on the islands in BC?

**Mr Dalton:** We tried to go broader than that and look at small hydro in general. From our perspective, the degree to which that technology is being implemented in BC is demonstration that it's economic in that market and that people are willing to invest in it. Rather than focus on a specific technology for small-scale hydroelectric projects, we looked at the projects overall and evaluated what the barriers are going to be that are going to impede the development and the increased application of these technologies in Ontario. Our focus kind of went beyond this low-flow technology.

**Mr Ouellette:** Although it was a very good political answer, I take it from that, though, that you didn't specifically look into the islands off BC to find out how they're utilizing low flow?

**Mr Dalton:** That's correct.

**Mr Steve Gilchrist (Scarborough East):** I appreciate the work you've done here. However, I'd draw a few things to your attention. First off, I think it was page 68, a by-product of burning hydrogen is not oxygen. You seem to miss something in the draft. It's almost a question posed to yourself there under 3.8.3. I can assure you that oxygen is not created in the burning of hydrogen. Hydrogen—and I admitted my bias when you were before us last time and Mr O'Toole made reference to it as well—is clearly the fuel of the future. I don't quibble for one second with any of your preamble about the current economic potential.

Let me ask you a few questions. You don't seem to have explored the potential for other large systems, such as railroad locomotives; is that correct?

**Mr Dalton:** That's correct.

**Mr Gilchrist:** Why not? In fact, 12 years ago when the technology was not nearly as advanced, Ontario Hydro invested a lot of money and prepared a paper on how GO Transit could be hydrogenized using off-peak nuclear power that's free with Lake Ontario water that's free and the only cost would be the one-time capital conversion and the ongoing pumping and compression costs. I must respectfully challenge your submission in here that there are no potential applications that are economically viable today, because I believe you're wrong.

We've also had Daimler Chrysler indicate that if they had an order for 1,500 buses—let me put that in context. Toronto this week ordered 220 just for this year's need. If you added up all of the buses being ordered by fleets just within the province of Ontario, my guess is this year you would have a number somewhere in the ballpark of 400

to 500. Daimler Chrysler will deliver 1,500 hydrogen-powered buses at the same cost as diesel. Today, not 20 years from now, not 10 years from now, the large vehicle applications I would submit to you could be, with some government assistance—obviously in this case the Ontario government being the sponsor of a bulk order of 1,500 buses. We could get the technology advanced to the point that it literally becomes the norm. I would ask you to go back and re-examine those sections and review the context of large vehicles, the merits of direct government intervention in the marketplace today.

A second point about hydrogen: in remote sites where currently diesel has to be trucked in or barged in probably once a year in some of the remote communities up north, it's an extraordinarily expensive way to produce electricity. I would invite you as you move from the draft to your final report to reflect on whether or not it is economically viable today to be matching up a windmill or a solar array to a fuel cell application that would provide the mobile electricity, if you will, over and above the stationary energy that's created by the windmill itself or the solar array and whether or not in northern Ontario there are merits today in the government both for environmental reasons but also economic reasons in taking every one of the 52 native reserves in places like Moosonee and Fort Albany and moving them into far cleaner technologies as perhaps a demonstration project. If there's any part of the province of Ontario where that would be justified, I think we would all agree it would make the most sense where current costs of energy creation are the highest.

The third point, and I'll make it more as a throwaway line, I don't fundamentally disagree with Mr Bradley's point about opening up a can of worms here on incineration, but I would raise a specific example and that would be the burning of tires in cement kilns. We're talking about in any one cement kiln the size of St Marys Cement just outside Bowmanville there, it's my understanding they would burn one million tires a year if they were guaranteed reliable supply. The alternative is that those one million tires are going to wind up in a landfill site because there is no other technology being used right now to crumb and assimilate that. While I wouldn't want to make it the focus of any report, recognizing that that would absolutely displace the burning of other petrochemical products, and that every tire is the equivalent of a barrel of oil in terms of the latent energy, I would invite some reference there under the section where renewables—and I'd be the first to accept that it's not particularly a renewable strategy save and except that every year people have flat tires or tires that wear out and another million tires will be shed into the marketplace here in Ontario. I would invite you to reflect on that. If you have any comments now, I'd be glad to get into a to-and-fro.

**Mr Dalton:** Your point with respect to remote communities, that clearly is going to be the first application for many of these technologies. I think you're right that we probably need to kind of go back and look at some of the technologies and put forward some policies there.



One of my notes earlier was that there should be something for wind power and looking at the application there in terms of remote communities. We will do a better job in terms of reflecting that.

**Mr Miller:** I'm subbed in here today so I haven't seen the report, but on the shortlist of alternative fuels there's no mention of propane or natural gas. Is there a reason for that?

**The Chair:** I think there is in the report itself.

**Mr Norm Miller (Parry Sound-Muskoka):** Is there? OK.

**The Chair:** If not, maybe in the summary.

**Mr Dalton:** At our November 7 meeting we put forward two potential objective statements and we had recommended the committee endorse the objective statement that we put forward and that really was to focus on reducing the primary demand for fossil fuels in Ontario. Based on that objective statement, we did not give consideration to switching to different fossil fuels, propane and natural gas. The intent here really was just to focus our research and our reference as much as possible.

**The Chair:** Further questions? Just a comment that I would have, not having completed reading all of the report, there were discussions when you were in, as I recall, about if a policy change is made, how long would it take for that to be reflected in Ontario? What would happen five years down the road? I'll give you an example of gasoline. To get ethanol in there in larger quantities or more actively, if we were to, say, drop the road tax, how quickly would that conversion occur; or if we were to provide an incentive someplace else, how quickly would the windmills start to spring up?

I think we, as a committee, need to have some indication of, in five years' time, how many megawatts of power would come from it. I think the public deserves that kind of thing and we look to you for that. There was that kind of discussion and I believe it was at the time that you were before us. I'm having a little difficulty being quite specific, but I think there was discussion along that line. I believe that would be tremendously helpful to this committee when recommending to the Legislature why we're saying that we would recommend this instrument be used because, in five years' time or in 10 years' time, we would expect this to happen; because in California or because in Denmark that was the response to changing the instrument in such a way. Can you accommodate that in the final report?

1150

**Mr Dalton:** We will endeavour. I think that's a very challenging analysis. As a consultant, when you start putting numbers on things, we're very careful when we do that because one needs to compare the economics of the existing system, compare the economics of the new technology, look at the incentive, see what's going to be the impact of the incentive in terms of the technology and then based on that start to estimate what's going to be the impact in terms of the overall rate of adoption of the technology.

**The Chair:** And of course there are other variables in the system.

**Mr Dalton:** There are. One can talk about what happened in Denmark, but then one needs to step back and say, "What was the experience in Denmark?"

**The Chair:** Even to know what happened in the examples of Denmark and California that we're using would be helpful. Then we can in our own minds have some idea as to how quickly things might or might not turn around.

**Mr Dalton:** We'll attempt to do a better job. I don't think we're going to be giving you the definitive estimate that you'd like, but we will try to reflect back in terms of experience in other jurisdictions and point out how that's moved these markets.

**The Chair:** Anything else from the committee while we have the delegation here? OK, thank you very much. On behalf of the committee, we appreciate the effort put into it. A few members identified a few holes, a few cracks, and if you can help fill in some of those in the final report, that would indeed be appreciated. So with nothing else from committee members, again, thank you for your work and for coming forward.

#### SUBCOMMITTEE REPORT

**The Chair:** I think what we should do is move to the amended committee report that Ms Grannum just circulated. That is how I remember the discussion the other day. Any questions?

**Mr Gilchrist:** Do you want it read in?

**The Chair:** Certainly, go ahead.

**Mr Gilchrist:** Your subcommittee on committee business met on Tuesday, December 11, 2001, and recommends the following:

(1) That the committee hold public hearings in Toronto on Monday and Tuesday, January 28 and 29, 2002, and in Ottawa if sufficient response warrants on Wednesday, January 30, 2002, and a second week of hearings in Thunder Bay on Monday, February 18, 2002, in Toronto on Tuesday and Wednesday, February 19 and 20, 2002, and in Windsor, on Thursday, February 21, 2002, with possible site visits in Windsor on Friday, February 22, 2002.

(2) That invitations be sent to all those who have previously appeared and those groups and individuals who have contacted the clerk's office to date, to respond to the committee's interim report during the hearings the week of January 28, 2002.

(3) Option 1: that the committee conduct meetings and site visits in Los Angeles, February 7-10, 2002; Sacramento, February 11, 2002; Vancouver, February 12-13, 2002; Calgary, February 14-15, 2002.

Option 2: that the committee conduct meetings and site visits in Los Angeles, February 7-10, 2002; Vancouver, February 11-12, 2002; Calgary, February 13-14, 2002.

(4) That the committee advertise in the English dailies and the French daily (*Le Droit*) for one day on January

10, 2002; that the advertisement will ask people to respond and present their views on the committee's interim report; that the advertisement also appears on the Ontario parliamentary channel and the Legislative Assembly Internet site as soon as possible.

(a) That the final deadline for those wishing to make an oral presentation be 12 noon on Monday, February 11, 2002.

(b) That the deadline for written submissions be Thursday, February 28, 2002.

(5) That the Chair and clerk of the committee have complete authority to schedule all witnesses and make all arrangements for the public hearings.

(6) That individuals be given 10-minute presentation slots and business groups and organizations be given 20-minute presentation slots.

I move the adoption of the report.

**The Chair:** Questions, comments? I have a couple if there are none from other committee members. We did talk about, as I reflect, if necessary, keeping the Monday and Tuesday open, February 25 and 26, should there be a large number of delegations requesting to come forward.

**Mr Gilchrist:** I'd be happy to add to the report. We'll do that in number 1.

**The Chair:** Yes; only if necessary.

**Mr Gilchrist:** "Further, that there be a possibility of additional public hearings in Toronto the week of February 25, should response warrant."

**The Chair:** The other one, Mr Gilchrist, just in travel, I notice you're really keen on Los Angeles versus Sacramento, Sacramento being the capital and where most of the companies etc would be. I'm getting different messages from research and—

**Mr Gilchrist:** I think research's own presentation shows that the majority of all of the windmill applications are in southern California, particularly near Palm Springs. The majority of the solar arrays are in southern California and they would be within about one hour's drive of Los Angeles. The best reason to go to Sacramento would be the California Air Resources Board offices being located there. I'm wondering, though, rather than all of us going off the beaten path to Sacramento, because there are no direct flights from Toronto, whether it might be cheaper to pay to have one person from the California Air Resources Board come south.

Having said that, the California Air Resources Board has regional offices and I'm told that its branch in Los Angeles is the busiest and most experienced when it comes to the environmental challenges that we are trying to deal with here in Ontario. I believe you will find that the same expertise is resident in terms of state employees. I think you'll find in terms of actual site visits there is next to nothing to see in the Sacramento area, but there is a lot to see in southern California.

**The Chair:** Can we have a little flexibility as we move around in these different places as to need etc? Maybe you and Mr Richmond can have some discussions on these two locations, because it's not something that I know first-hand and both of you seem to. So maybe you

can just have a little discussion later as to where we're going.

**Mr Gilchrist:** I would also add that it's my understanding that the clerk will be getting the costing for the two options, and I think that also will bear on our decision here.

**The Chair:** Sure. Otherwise, that's how I recall the discussion.

Further discussion?

**Mrs Marie Bountrogianni (Hamilton Mountain):** On the report or on another matter?

**The Chair:** On the report. Over and above this, we should talk about Navigant, but I think we'll get this approved now. Those in favour?

**Mr O'Toole:** I have one question, if I may, in the context of this report. I'll be brief. Who's going?

**The Chair:** The committee.

**Mr Gilchrist:** Anyone who wants to go.

**Mr O'Toole:** OK, that's good. That means anyone who's had any other trips and all that stuff? I'm not trying to be smart. We don't need 1,200 sets of eyes seeing the same thing. John Hastings etc?

**The Chair:** As I understand, it's available for the committee, for the clerk and the researcher.

**Mr O'Toole:** OK, that's fine. No outside people? How many? How many staff and all that kind of stuff?

**The Chair:** The clerk and the researcher.

**Mr O'Toole:** All right; just a simple question. How about making alternative arrangements? For instance, I will be in Alberta myself probably about a week before that. Do I make that through you, Tonia? It's not a problem? I haven't decided yet, but I'm there under other official functions.

**Mr Bradley:** Is that for the Alliance convention?

**Mr O'Toole:** No, it's actually for the Ministry of Finance.

**The Chair:** I think the movement around the country would be typical of other committees and those rules and regulations will apply. By going over the weekend, we're going to have—

**Mr Gilchrist:** One third the cost.

**The Chair:** —it much cheaper than if we did it over one week.

**Mr Gilchrist:** About half price.

**Mr O'Toole:** Do we have an estimated cost on what it costs for this per person? Are there any numbers that have been floated; is it \$4,000, \$8,000 or \$12,000?

**Clerk of the Committee (Ms Tonia Grannum):** We don't have it on the first option, but if we were doing the Sacramento trip, it was \$1,100 per person, if you do the Saturday. You have to stay over the Saturday.

**Mr O'Toole:** That sounds reasonable.

**The Chair:** Plus the accommodation, plus some travel by bus out there, so probably way out—\$20,000?

**Mr O'Toole:** I'm not charged with handling the economics for this group, so—

*Interjections.*



1200

**The Chair:** Oh, I'm sorry. We'll need to vote on the amendment first, to sit the week of the 25th, if necessary. Those in favour of the amendment? Those opposed?

**Mrs Bountrogianni:** The 26th and 27th are out of the question for us.

**Mr Gilchrist:** The motion said "the week of," though.

**Mrs Bountrogianni:** All right.

**The Chair:** We'll pick whatever days people are available. What I was looking for was in case we needed a little more time. So those in favour? The amendment is carried.

Now the amended motion for the subcommittee report. Those in favour? Those opposed? The subcommittee report, as amended, is carried.

I need to comment on a couple of things. If you're sending any response to Navigant, please include Ms Grannum as a carbon copy, just so we keep track of what's going on.

Also, while you're here, could we just have a few minutes on how the committee is going to respond and how you want to deal with this? Do you want another interim report some time in February? Would you like to meet next week after you've read this? Do you want to meet the Wednesday before the committee sitting, whatever that Wednesday is, in January? I'm struggling with how you want to handle this.

**Mr O'Toole:** I would be interested in having an itinerary with some background stuff: who the people are, the background of each of the groups, whether it's at the issue level, whether it's wind, solar, whatever. I expect that we would have had the opportunity to be very familiar with the report. I don't get all the stuff you get.

**Mr Gilchrist:** It was sent to you in separate form.

**The Chair:** That information has been sent out a couple of times; not a specific schedule as to who will be here at 9 o'clock, but the different ones we're looking at has been sent out. I appreciate your comments and we'll keep you updated as much as possible.

I'm concerned with what we do with this report that we have, when it's finalized and how we deal with it.

**Mrs Bountrogianni:** One possibility is that the next time we have been scheduled to meet, we talk about it first, rather than have another meeting.

**The Chair:** You want to wait until January 28?

**Mrs Bountrogianni:** Yes.

**The Chair:** I'm just looking. I don't want a meeting for the sake of meeting.

**Mrs Bountrogianni:** That's right. That's what I'm trying to avoid. So if we can schedule the hearings such that we can have—

**Clerk of the Committee:** It's a block of time.

**Mrs Bountrogianni:** It's a block of time that we're together. We can schedule the meetings where the people who start at the hearings start an hour later and we deal with the report before. I just want to cut down on—

**The Chair:** If I may comment, on Monday, January 28—I think I've got the right day—we take from 10 to 12 to review the report and how we want to handle it and

then we start with delegations in the afternoon. Are people comfortable with that?

**Mrs Bountrogianni:** That sounds great, if that's OK.

**Mr Gilchrist:** The only caveat to that is, of course, the amount of time we would have after that to make any adjustments based on the discussions we have that morning. I can't remember the exact details of the contract with Navigant.

**The Chair:** I think it's over by January 28.

**Clerk of the Committee:** They're to submit a final report in January. I can't give you the exact date yet. I think it's January 15, something to that effect.

**Mr Gilchrist:** That certainly would give greater urgency to any individual member forwarding their comments to Navigant and to the clerk in a timely fashion, and requesting that Navigant, in an electronic form, retransmit what they propose to be the final report before they actually submit it. My preference would be at least one week before the deadline for submission, which would give us one last opportunity individually to go over that report.

I don't know whether there would be a great need to get together, although perhaps a teleconference might be the most efficient way. If such a revised report was distributed, perhaps a day or two later, the Chair and the clerk could arrange for a teleconference. Those members who want to participate could join in and you'd have one last kick at the cat.

**Mrs Bountrogianni:** That seems efficient.

**The Chair:** If the Chair isn't available, the Vice-Chair is. But certainly the first round, as we indicated to him, we'd have those comments to him by Christmas.

The other one is the report that has been given to us. Do you want this put on the Web? Is that in order at this point in time, or do you want to wait until the report is finalized?

**Mrs Bountrogianni:** I think final.

**The Chair:** And then would you feel comfortable with it on the Web?

**Mrs Bountrogianni:** Yes.

**The Chair:** Before our response to it?

**Clerk of the Committee:** I'm having just the final report from Navigant on the Web, as opposed to putting the draft report on.

**Mr Gilchrist:** I don't think it would be appropriate to put the draft report on. First off, we've identified some problems at a very cursory level. For example, that the burning of hydrogen creates oxygen is not something I think would form the basis of a report I'd like to see out there in public.

**The Chair:** We can discuss this on January 28, whether we put the interim report or the final report. If the final report—

**Mr Gilchrist:** The final report. Once we've signed off, I think it is appropriate. We've spent the taxpayers' dollars on that.

**The Chair:** Then those who are presenting to us will have our first interim report and we'll have this report. It's a lot of material they can look at and respond to.

Is there anything else we should be covering prior to meeting on January 28?

**Mrs Bountrogianni:** Just a very small item. I have a summary—and these materials are in my office—of European sources, the conference and my meetings. My report, as a summary of that conference and meetings, will be given to the committee members before the 28th, so you can have that as a background, but if anyone wants to borrow or take any of these—and then at the completion of committee business, I will give it to the library, I guess.

**The Chair:** Before we adjourn, I need to have Mr Richmond make a few comments on his thoughts on how we respond as a committee to this report, so we're at least doing some thinking prior to seeing the final.

**Mr Jerry Richmond:** Let me just say first off, I guess we've all enjoyed our experience here in the last six months and I think we've come a long way. I don't know whether my hair has gotten greyer over the last six months.

**The Chair:** You're losing some.

**Mr Richmond:** These things are tentative, but because we're not going to be meeting for a month and a bit, I thought to share these thoughts with you and get some general concurrence.

Dr Galt and I were chatting about where we go from here. The thinking is that the interim report would be transformed, modified, whatever, down the road, before the end of May, to become the final report. I think what's in there, the basic organization of it, with whatever modifications, would serve as a good basis for that.

The committee well knows they had six primary objectives at the front and 65 public policy questions. My sense is that somehow the public policy questions can be transformed into recommendations, with whatever other input occurs over the next five months or whatever. So there's that point of transforming the interim report into the final report.

This is a matter of how we integrate the Navigant report. That's a matter for consideration. Once we receive the final Navigant report at the end of January, from looking at the outline of their draft report, it would seem that the recommendations of the consultants and the ones that the committee wants to buy into could be inserted into the interim report, bolded or something. My thinking is, in the interim report, you would well know, we have recommendations from the witnesses who appeared, I think, the week of hearings in August. With computer technology, we could very easily add the final Navigant recommendations into the appropriate sections under wind, solar etc, subject to them preparing the final report and any further interaction between the committee and the consultant.

Dr Galt and I were chatting and in terms of our upcoming hearings, both here in Ontario and in the western part of North America, my thinking is that the material that results from those hearings, if they do bring to the fore significant new information, could be distilled down

and, once again, I'm confident that we could use the interim report as the template for that.

Those are just general thoughts. I don't know whether anyone wants to respond, but Dr Galt and I felt that, because we're not going to be meeting for a month and a bit, just to share those thoughts with you so we can get a sense—because there were some questions, in a general sense, of where we are going from here.

**1210**

**The Chair:** Maybe on the 28th you might draft up something for us to see.

**Mr Richmond:** My thinking is it's going to be a work in progress. On the 28th, I would wait to see what comes out of the final report from Navigant, their final recommendations, see what the interaction and response is from committee members to those recommendations and then after that, they could be slotted, in whatever computer template, into the interim report.

**The Chair:** Is the committee semi-comfortable with looking at that route, and on the 28th we'll revisit it and continue to work with it into next year?

**Mrs Bountrogianni:** So it will be sort of an interim interim report?

**The Chair:** If the committee so desires, yes, a second interim.

**Mr Richmond:** It's up to you.

**Mrs Bountrogianni:** Would the purpose of that be just to keep us up to date on what we've done so far? Why would we do that instead of waiting for a final report?

**Mr Richmond:** I just thought to advise you so that everyone knows of the prospective process, so we don't come to April or May and committee members are not aware of what has transpired. If you wanted another interim report at the front of the previous interim report, we have an executive summary. We could modify that and hypothetically take the 65 public policy questions that are grouped by wind, solar, biomass etc and, subject to direction, insert the final Navigant recommendations. That's totally doable, if that was the committee's wish.

**The Chair:** So do some thinking between now and the 28th.

**Mrs Bountrogianni:** Can we think about that, fellow committee members?

**The Chair:** First, if you want a second interim report, is there any advantage? It does start pulling information together in one common pool that you can look at. Wind: this is what the public was saying, this is what we heard from our researcher, and now how do we put that into a final? It's pulling it together for us by going through that exercise.

**Dr Bob Gardner:** One thing we can do—Jerry and I haven't talked about this, but we can work it out behind the scenes for you—is if you want to put the revised version of the Navigant report up on the site, you'll want to be commenting on it somewhat. It is something you're putting up. You want to say, "We agree with these recommendations; we're going to think a little more about those recommendation. Here is the direction we're



going next." That may be something for you to be thinking about between now and the next meeting. Jerry can quickly work up some notes that may help with that. We can send you something before the next meeting to facilitate that.

**The Chair:** OK, thank you. Mr Ouellette, I think you were struggling to get in there.

**Mr Ouellette:** Just a comment about the presentation we had earlier. I was very disappointed in the presentation. I thought there was some specific direction—and maybe it was in the way we laid it out that we didn't receive certain things. Obviously, the costing of electricity was something that was brought up by a number of members here.

Are we sure we're getting exactly what we're asking for? I felt I specifically asked for the local BC, brought it up, and it wasn't mentioned at all. They didn't even bother to contact the people, obviously. So I'd like to make sure that if we're going to hire these people, we get what we pay for. I'm not sure I saw what I was expecting from them. I didn't see that, and I'd just like to make sure that if we're going to be paying these people, we get the value we paid for.

**Clerk of the Committee:** Your specific question was on the—sorry?

**Mr Ouellette:** The low-flow usage in British Columbia whereby islands just off the BC coast are not connected to the grid and they're utilizing local technology. I brought that forward, and the electricity costing question was brought up by a couple of members here. There was no response, which to me indicated that they didn't do the research in those areas.

**Mrs Bountrogianni:** Did they not indicate, Chair, that they would later on?

**Mr Ouellette:** We hope so, but I want to make sure we get compliance, because we're going on the 28th. If on the 28th their contract ends and they say, "Well, we did the best we could"—we looked at the bigger picture here.

**Dr Gardner:** What we can do is look back at the terms of reference in the original contract and at the Hansard and check that out. We'll work with Tonia and the Chair and advise the Chair on the final sign-off on this. If members have some specific concerns like that, let Jerry and I and Tonia know and we'll look at it very carefully. The Chair has to sign off on this, and if there are concerns, we can negotiate further with them.

**The Chair:** OK. The other question I would like to pose to the committee is, I thought it was interesting, maybe even ironic, that we had two ministries that opted not to come before us, namely Training, Colleges and Universities and also the Ministry of Municipal Affairs and Housing. It's surprising how much in this report was pointing a finger at them. How strongly do you want your committee Chair to encourage them to come before us, or would you like to have them subpoenaed?

**Mr Gilchrist:** Let me just deal with MMAH. Now that the municipalities have ownership of all public housing, I don't know what would be served by having a min-

istry that once was a landlord, that once had the ability to put in passive solar or any number of environmentally appropriate technologies but no longer has that power today. I don't know what would be served by asking them to come before us, recognizing it won't be up to them to incorporate the kind of policy changes this committee might advance. That would be MEST. So the fact that there may be applicability to housing when we're done I think is utterly irrelevant to the folks at MMAH. These are energy initiatives. There's a ministry of the crown that's charged with advancing that agenda and it isn't MMAH.

**The Chair:** The thinking was just simply housing and certain requirements in housing as they relate to insulation, development of—

**Mr Gilchrist:** Might I suggest that if you are looking in that direction, it would have been far more appropriate to invite the head of the Building Code Commission and challenge them to bring the committee up to date with the evolution of green technologies into the building code to date, why it hasn't gone further, if in fact the committee thinks there are other things that could have been incorporated. That's the specific arm of the government that is responsible for those technical details and, again, it's arm's length from the minister.

**The Chair:** The other aspect that was brought up was on planning, zoning, windmills. If the committee doesn't want to hear from them, it's unfortunate, but the Chair was concerned.

The other one has to do with the whole MUSH sector and building buildings, whether it be a hospital or a university or a secondary school. I think we heard Mr Parsons and his frustration. Should we be looking at policy instruments that would encourage or require those kinds of changes?

**Mr Gilchrist:** Let me just finish off on your municipal affairs question. I think it's a very different kettle of fish. If the committee wanted to pose specific questions, that might generate a more positive response from the ministry. Instead of being under the impression that they have to all of a sudden develop some great expertise on green technologies that may not be resident in that building right now, if the question relates to something like the planning for windmills, I think you would get a response. You may get an instant written response that saves the committee a lot of time.

On the general question—and then I'll yield to Ms Bountrogianni—I agree that we need to be looking very seriously at all government buildings, both the ones we build to own ourselves and the ones we fund in the MUSH sector, but, again, let's be clear what we're going to ask them. If you want them to come before us and explain why they've done what they've done or why they haven't done certain things, that's fine, but let's make that very clear in the invitation. If we're asking somebody from the Ministry of Training, Colleges and Universities to come in and speak to the merits of the sort of technologies we have going here, I don't think that's fair to them, because I doubt very much that they have that expertise.

**The Chair:** I think you may have hit on it. Maybe the issues that have come out in this report—we'll wait until it's final and just lift those recommendations out and say to them, "What's your response?" That may be the way to handle it.

**Mrs Bountrogianni:** I would agree with Mr Gilchrist with respect to the Ministry of Training, Colleges and Universities. There are certainly things that are just now starting to happen in other parts of the world, so I don't expect anything from the ministry at this point. For example, in Europe right now they're just starting a master's in renewable energies this fall. That's totally new in the world. That's something that maybe the ministry would like to think about in the future, but I

don't see the purpose of yet another meeting, yet another hearing, yet another, "Sorry, we don't have the expertise, but here's how wonderful we are in other areas." It's a waste of time.

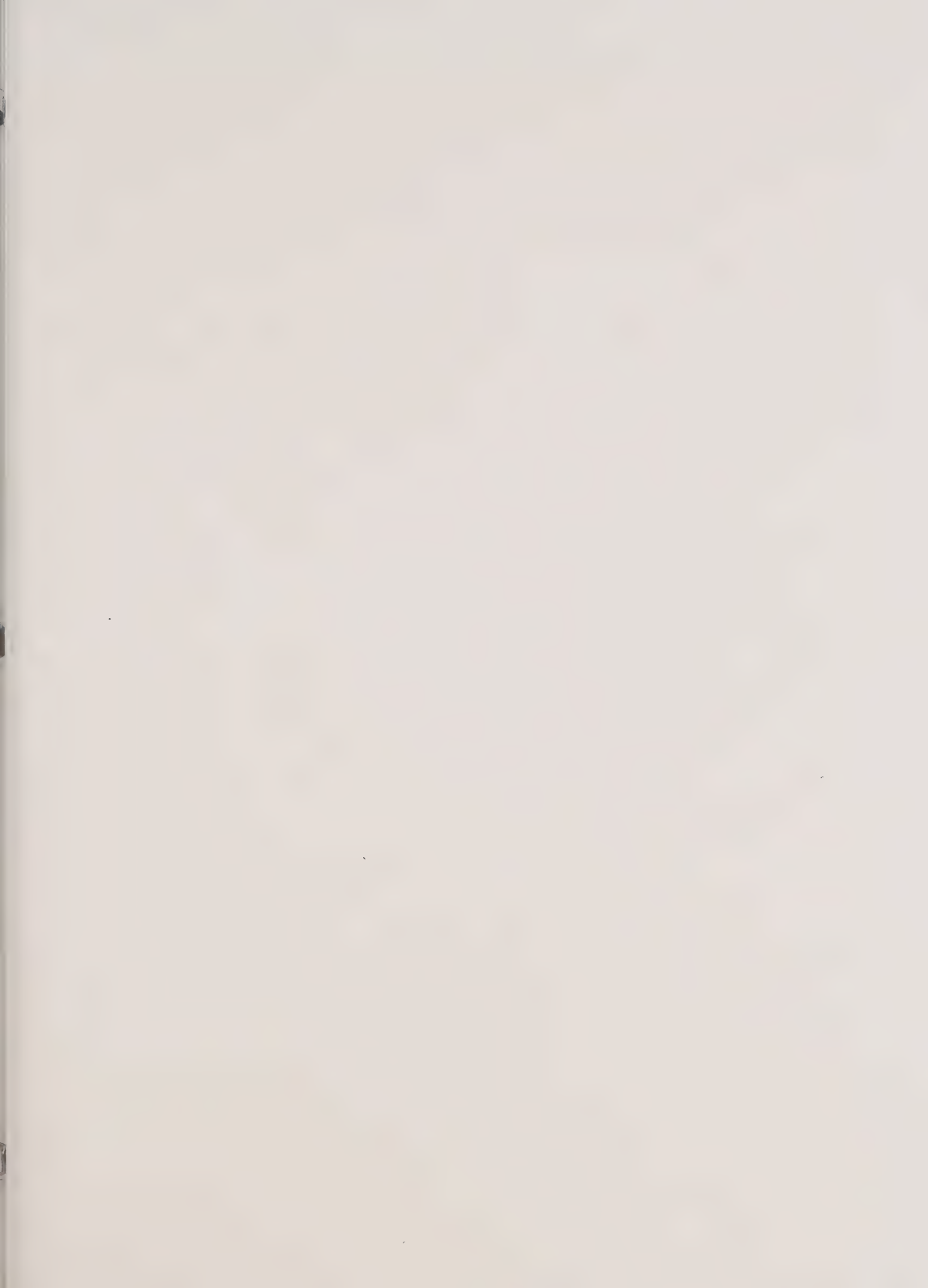
**The Chair:** But we may have hit on a way of handling our response to this, just simply to ask some of the ministries, "What are your responses to these recommendations?" Then that might even be part of our final—

**Mrs Bountrogianni:** Sure.

**The Chair:** Anything else that needs to come before the committee at this time? Seeing that it's 20 minutes into lunchtime, the select committee on alternative fuel sources is adjourned.

*The committee adjourned at 1221.*











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### SELECT COMMITTEE ON ALTERNATIVE FUEL SOURCES

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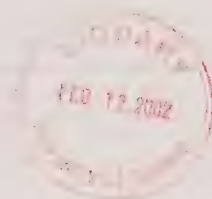
Monday 28 January 2002

# Journal des débats (Hansard)

Lundi 28 janvier 2002

**Select committee on  
alternative fuel sources**

**Comité spécial des sources  
de carburants de remplacement**



Chair: Doug Galt  
Clerk: Tonia Grannum

Président : Doug Galt  
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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Monday 28 January 2002

Lundi 28 janvier 2002

*The committee met at 1004 in room 151.*

**The Chair (Mr Doug Galt):** We'll call to order the select committee on alternative fuel sources. Happy new year. Welcome to everyone who is here, committee members.

## PEARL EARTH SCIENCES CORP

**The Chair:** Our first presentation is from Donna Dickson, the president of Pearl Earth Sciences Corp. Will you please come forward and join us at the table. If you have any others whom you would like to join you, there's a total of four microphones here. As you begin, please state your name for the record for the sake of Hansard. You have a total of 20 minutes and you can use that in presentation. What's left over will be divided equally among the three caucuses for comment or questions on your presentation.

Thanks for coming. We appreciate your interest in our committee and look forward to your presentation.

**Ms Donna Dickson:** Is this mike on now?

**The Chair:** Yes, it is. It's operated centrally so you don't have to worry about it. When the red light is on, it's on. The button there is for muting, so if you want to say something to your associate without our hearing it, you can mute it and have a chat.

**Ms Dickson:** OK. Good morning. My name is Donna Dickson. I'm president of Pearl Earth Sciences Corp. This is my business partner and vice-president of our company, Gerry Morgenroth.

Thank you, Mr Chair, for the opportunity this morning to address you and your select committee on alternative fuel sources. The presentation comprises four sections and you will see how one leads to the other. The first one will be who we are; the next one will be an explanation of the Plasma Converter technology for the processing of all waste materials and its value in helping to move toward the goals of reaching a sustainable society; the third will be a brief description of the useful gases we produce; and fourth, the strategic planning for the hydrogen economy, the hydrogen commercialization plan and how our government can help us to achieve this.

First of all, I'd like to set the tone for the presentation this morning. If everybody has a piece of paper, I'd ask you to write down the two following quotes. The first one reads like this: "Sometimes we have to do what we have to do because we have to do it." I'll repeat it. "Sometimes

we have to do what we have to do because we have to do it." You can underline the last "have" in that sentence. The next quote is, "To sin by silence when they should protest makes cowards out of men and women." At the end of the presentation I'll tell you whom those two quotes are from.

I would also like you to make note of the following Web address. I believe Tonia is going to make copies of it, but the Web address is [www.hydrogenus.com](http://www.hydrogenus.com). It's a 21-page document. I didn't know whether I should print it off, being an environmental company. Anyway, I believe Tonia is going to print that off, and you'll know why I'm giving you that address as we get further into the presentation.

I'm sure all of you have reviewed this videotape. It's called *Exposure: Environmental Links to Breast Cancer*. It was hosted by Olivia Newton-John. I believe all of the members of the Legislature probably had a chance to review that at some time or another.

First of all, I'd just like to read the following. As international representatives of Startech Environmental Corp, it is our pleasure to provide the enclosed technology information to you. We feel that after reading this material, you will share with us the enthusiasm that this technology inspires. Tonia will be giving you a copy of our brochure. There is other pertinent information in the back of it that you can read at your leisure.

The Startech Plasma Converter system is the most innovative and environmentally responsible technology today for recovering the resources residing in otherwise unwanted and no longer useful products and materials. This technology addresses and solves three problems simultaneously: (1) it ensures the total and safe disposal of any kind of waste; (2) it reclaims the materials and energy for reuse in new commodity products; and (3) it relieves the stress on the environment and precious natural resources. There is no further need for the harmful disposal of waste, and it also significantly lessens the need to discover and extract new resources. That is in your kit.

## 1010

In order for you to understand where alternative fuels come into our business, I'm going to read to you a synopsis of what's in the brochure we've given you—it's also in the brochure—on Plasma Converter systems.

What is plasma? It's a very special form of gaseous matter that conducts electricity. It's the raw material of

the sun and stars. It makes up 99% of all matter in the universe. It's found in stars, lightning, electric arcs, aurora and fluorescent lights. It's also referred to as the "fourth state of matter."

Physicists have known of plasma for over 30 years. Plasma technology was originally used in the aerospace industry, but continued research in the field of plasma physics has developed an application process. This development, the Plasma Converter system, has global significance in achieving a sustainable society.

Pearl Earth Sciences Corp regards all waste produced by industrial societies as a valuable, renewable resource that helps to offset the need to consume the ecosystem's limited virgin resources. The Plasma Converter is a manufacturing system that converts both hazardous and non-hazardous organic and inorganic wastes into safe, valuable commodity products.

The global challenge is to achieve a sustainable society in view of the following.

Hazardous waste: there are more than 200 million tons a year produced in the United States alone.

Non-hazardous waste, such as municipal waste, industrial/commercial waste: there are now over 13 billion tons in the US alone;

Exponential North American population growth means there are going to be over one-half billion people within 60 years;

The future infrastructure will have to double.

There are four critical demand factors: (1) the need for customers to reduce the costs for hazardous and obnoxious waste disposal; (2) the need for customers to comply with present and anticipated environmental regulations in a cost-effective manner; (3) the need for customers to eliminate the personal and organizational liability associated with hazardous waste disposal; (4) the need for customers to economically process hazardous and non-hazardous wastes and industrial by-products while recovering commodity products for re-use or sale.

A few principal advantages: it greatly reduces the cost and risk associated with hazardous waste generation; it can process any and all waste material in any forms; it's safer than current and proposed environmental standards; it recycles waste into valuable, saleable commodity products; the systems are for plants of hundreds of pounds per day to plants of hundreds of tons per day; they can be stationary or mobile systems; and they have safe and irreversible destruction of even the most deadly wastes.

How the plasma waste converter operates: it forces gas through an electrical field to ionize the gas into a plasma which conducts electricity. The intensity of plasma excites and breaks apart the molecular bonds, or molecular dissociation, as it's referred to. It recycles waste into commodity products, such as clean synthetic gas, which we called plasma-converted gas or PCG, methanol and hydrogen. These will be discussed in more detail later in the presentation. Other products could be metals and silicates. We achieve volumetric reduction—more than 300 to one—and it's safer than US and Canadian environmental standards by orders of magnitude.

The obvious benefits: there's no sorting required of garbage and waste; it converts toxic substances into harmless materials; it converts all such substances that would require storage due to their environmental hazard into usable materials; it converts waste from hospitals and general household garbage into beneficial, valuable materials; all industrial wastes, hazardous chemicals, automobile tires, and liquids can be converted without difficulty; ceramic encapsulation renders harmless low-level radioactive substances and materials; the burn residue or ashes from incinerators can be converted into new construction materials instead of disposal in landfill sites as hazardous material; and construction wastes can be processed.

Conclusion: the Plasma Converter system offers the best solution for a clean and healthy environment by converting hazardous and non-hazardous organic and inorganic wastes and by-products into safe, valuable commodity products. The benefit from the profitable recovery of materials from wastes and for the prevention of landfill expansion without the use of incineration will help preserve the earth's virgin resources and provide the blueprint for a truly sustainable society.

The next section: because I don't believe you need to reinvent the wheel, I will read some press releases from Startech Environmental as it relates to the hydrogen fuel cell vehicles, or hydrogen vehicles. I want to make it very clear that we are not promoting any one automobile manufacturer, although there is one mentioned here, but we know the stage that the different automobile manufacturers are at when it comes to fuel cells and using alternative energies or gases such as hydrogen and methanol. In this case, I'm going to concentrate on the hydrogen aspect, because we feel we're into the new hydrogen age and that we will be at the forefront of that hydrogen age. This was a release made in July 2001. It says:

"Startech Environmental Corp, the world leader in plasma waste remediation and recycling technology, announced today that it has demonstrated the successful operation of its hydrogen vehicle by driving it around Bristol, Connecticut." That's the location of the company's demonstration and training centre.

"The centre houses an operating, industrial-sized Plasma Converter system and the new StarCell unit. The vehicle is a white Ford pickup truck with a four-cylinder engine and a standard transmission.

"Shell Hydrogen and Sunline Transit Agency logos are prominently displayed on the truck along with the names of industrial, governmental and educational organizations who are also playing a leading role in advancing hydrogen vehicle transportation. Sunline Transit Agency is a world leader in commercializing hydrogen fuel technologies and is a recognized force in the development of low-cost, pollution-free transportation. Shell Hydrogen is a global business of the Royal Dutch/Shell Group of companies. Shell Hydrogen develops business opportunities and provides energy solutions to promote a hydrogen reliant fuel economy."



It says in the brochure "President Joe Longo." Since this was printed, he has retired. The new president and CEO is Joe Klimek. Anyway, Mr Longo said, "This is a major step that will help forward the expansion of our worldwide marketing program. We plan to use the truck at our centre to show how the hydrogen produced from safely processing many kinds of waste in our Plasma Converter system can be used as the fuel for the truck. It is powered by a direct-use hydrogen engine. In fact, much like an ordinary car, there is a reciprocal engine under the hood that produces the horsepower through the transmission to propel the car, and also produces the electricity through the generator to supply all the car's electrical systems. This is not a fuel-cell/electric motor vehicle, nor is it a hybrid engine. The car uses no other fuel but hydrogen. It gets good mileage and is very easy to fill. While it's quite impressive, we want to keep it simple and straightforward. This is about hydrogen power from trash; there will be more on this to come.

"When you consider the fact that hydrogen is one of the most abundant materials in the world, and that trash is one of the most abundant renewable resources in the world, and further, that their affordable future joining through the Startech system can help solve some of the environmental and energy problems facing the world, it seems to me that this is a most elegant and exquisite solution to those problems, and a solution in perfect harmony with Mother Nature. One of our jobs is to get people to really understand this. They will."

"After driving the truck, Karl Hale, VP of engineering, said, 'It's great. It has the same pep and feel I'd expect from a car that uses gasoline. But, unlike a gasoline engine, there was no smoke or smell coming out of the exhaust even when starting and accelerating, and even when I drove it up a hill. As a matter of fact, the only thing you could see coming out the exhaust were a few drops of fresh water.'"

There's about another page and a half, and I do think it's important that it be read out loud so that everybody, in case they don't read the material themselves, will at least have heard it.

How the converter works: The Plasma Converter system is a process whereby waste materials continuously fed into the system are safely and economically destroyed, re-formed and recovered by the company's molecular dissociation and closed-loop elemental recycling process. The principal Plasma Converter achievement is that it safely and irreversibly destroys non-hazardous, hazardous and toxic waste in all their forms, no matter how lethal, at low cost and without any harmful emissions or residues. And it does this safer than prevailing environmental standards. While hazardous waste destruction is Startech's main business, the ability to recover valuable commodity products is becoming more important to its customers every day. One of the principal products recovered is plasma converted gas, a clean synthesis gas that has many commercial uses as a clean fuel.

## 1020

The PCG gas would be an excellent gas to use where you have district heating within your municipality, and that doesn't account for the fact that if there is no district heating we can still convert it by using StarCell and convert it into hydrogen. However, we do also produce steam. When you're processing municipal waste, steam is another by-product which can be used in a cogen station.

What is plasma? Plasma is a gas or air that the converter ionizes so that it becomes an extremely effective electrical conductor. This allows the converter to produce a lightning-like arc of electricity that is the source of an intense amount of energy transferred to the waste by radiation. The interior temperature of the lightning arc in the plasma plume within the vessel can be as high as 30,000 degrees Fahrenheit, three times hotter than the surface of the sun. When waste materials are subjected to the intensity of that energy within the vessel, the excitation of the molecular bonds is so great that the waste materials' molecules break apart into their elemental components—the atoms. It is the absorption of this energy by the waste materials that forces elemental dissociation, resulting in the complete and total destruction of the waste.

What is plasma-converted gas or PCG? PCG is a manufactured synthesis gas produced from processing waste in the converter vessel that can be used as a clean fuel and as a chemical feedstock to make many hydrocarbon-based products including methanol, an important alternative fuel. PCG is not a molecule such as methane; PCG is a gas mixture rich in hydrogen. That hydrogen can be separated and captured for use by StarCell. StarCell hydrogen is a valuable commercial-grade hydrogen that can be used in fuel cells and in direct-use hydrogen engines to produce electric power for domestic and industrial use and also for transportation such as in the hydrogen vehicle mentioned earlier.

What is StarCell? StarCell is the company's new patented hydrogen selective membrane system that separates hydrogen from PCG. Once the hydrogen is removed for use, the remaining carbon-based component of the PCG syngas can still be used as a valuable fuel or chemical feedstock. StarCell is not a fuel cell; it is a ceramic membrane filtration system.

Again, Mr Longo went on to say, "In many respects hydrogen is safer than gasoline. But even though hydrogen is so abundant in the universe, it is not readily accessible. Expensive and sophisticated chemical-industry processes must be used to extract it. Nearly all of the hydrogen produced today is made from fossil fuels. These fossil fuel molecules are 'reformed' in a complex thermo-chemical process consisting of many steps. This expensive reformation process is exactly what our Plasma Converter does in destroying most wastes. This gives us a special market advantage in the production of hydrogen."

**The Chair:** You have approximately two minutes left in your presentation, so you may want to sum up.

**Ms Dickson:** OK. I'll leave that then, because it's in your brochure.

Since we're intricately connected to the United States, I think it's important that as governments, when we make up our own policies to do with the energies that we're producing here in Canada, we're at least in sync with the US government or we are far superior to them. I'm not promoting the US government. However, there's a brief synopsis here, and it really will pertain to Canada as well.

All I'm asking is that when the government is forming its policies they look at what is required for the promotion of hydrogen within Canada. We are at the dawn of the new hydrogen age, and as I said earlier, we expect that Pearl Earth Sciences will be at the leading edge of the production of hydrogen. We are in the process of finishing our business plan to do a 100-tonne-a-day tire facility within Durham region. We are also in talks with many municipalities, not only here but across Canada, internationally. It's very exciting, and I'd like to think that you, as government officials, as politicians, understand the significance of what we're telling you today.

I'll read this little bit on the strategy planning for the hydrogen commercialization plan, as it was written in the United States. But I know in Canada the federal government is also on board with our hydrogen plan and is working in close contact with the US government, I believe.

**The Chair:** Thank you very much for—

**Ms Dickson:** Is that it?

**The Chair:** Yes, you're well over. Sorry. It was much appreciated.

**Mr John O'Toole (Durham):** Mr Chair, I have a—

**The Chair:** It would have to be 30 seconds or less, if that's possible, Mr O'Toole.

**Mr O'Toole:** Thank you very much. I do appreciate your quotes. I think it was George Bernard Shaw.

**Ms Dickson:** Which one?

**Mr O'Toole:** That's the question.

**Ms Dickson:** No, it wasn't.

**Mr O'Toole:** It wasn't. You've got the source wrong, then. Thank you.

**The Chair:** OK. Again, thanks very much for coming forward. We appreciate your information on technology.

**Ms Dickson:** The first quote was by myself and the second quote was by Abraham Lincoln.

**The Chair:** OK. So the first one is pretty famous?

#### ADMIC ENERGY CORP

**The Chair:** Our next presenter is Admic Energy Corp, David Rygier, executive vice-president. Thank you very much for coming forward.

**Mr David Rygier:** I'm David Rygier and I have with me my business partner, Dr Charles Rhodes, who will be the presenter this morning.

**Dr Charles Rhodes:** As David has indicated, my name is Charles Rhodes. I am the chief executive officer of some of the Admic group of companies. These companies are involved in the design, manufacture, instal-

lation, operation and maintenance of small cogeneration systems. These systems are primarily applied to high-rise residential buildings within Ontario. As an organization, we also have hands-on experience with district heating systems. I remind you that most high-rise apartment buildings are in fact vertical district heating systems.

Cogeneration is a process that involves the conversion of high-temperature heat, which is usually obtained from the combustion of a fossil fuel, into both electricity and low-temperature heat. The low-temperature heat is usually used for space heating and potable water heating. In an apartment building application, generally the fuel is natural gas. The low-temperature heat, as I've indicated, is used to provide space and domestic hot water heating. The electricity generated is used to reduce the amount of electricity the building owner purchases from the municipal utility. Viewed as a percentage of the chemical energy input, the outputs of a typical cogeneration system are as follows: electricity is generally in the range of 20% to 30%, useful recoverable heat is generally in the range of 40% to 60% and the balance is waste heat.

We're in a business which is generally categorized as small cogeneration systems. In the industry, small cogeneration systems are units with an electrical output capacity of less than 500 kw. However, in most high-rise residential buildings—and I'm talking typically of buildings of about 180 to 200 suites—the optimum cogeneration unit size is in the range of 75 kw to 125 kw, and the recoverable heat is about 150 kw to 230 kw. That is the size range I will be referring to in the balance of the presentation. Obviously, larger buildings can have either multiple units or larger cogeneration units, but this is where the bulk of the market is.

Why have a cogeneration system? There are two reasons. First of all, if the building in which you're applying it is already purchasing natural gas for space heating, then you can generate an amount of electricity approximately equal to half the heat that is used in the building at a very high efficiency. This is typically in the range of 75% to 85%. That efficiency is three times higher than can be realized by a utility with a thermal generating station. What's most important from the point of view of this committee is that the carbon dioxide emissions associated with the generation of that electricity can be reduced by 85%. That is, the carbon dioxide output from a natural-gas-fuelled cogeneration set located within an apartment building is generally about 15% of the corresponding carbon dioxide output from OPG generating the same amount of electricity by burning coal. So herein lies a huge opportunity for this committee to address itself to reduction of carbon dioxide output with a few strokes of the pen.

#### 1030

The opportunity is roughly as follows: about 6% of all the electricity used in Ontario is used in high-rise, multi-residential buildings. That includes apartments, condominiums and nursing homes. About two thirds of this amount, or 4% of all the electricity used in Ontario, can readily be displaced by small cogeneration systems. The



opportunity for reduction in carbon dioxide emissions is substantial.

Unfortunately, there's been a prolonged uncertainty relating to electricity pricing in Ontario which has made building owners very reluctant to contemplate installation of cogeneration systems. Some form of incentive tied to carbon dioxide emission reductions will be necessary to make building owners willing to consider large-scale investment in these systems in the near future.

Several new cogeneration technologies are emerging. However, some form of financial incentive, perhaps funded by the Ministry of Energy, will be necessary to enable further development of these cogeneration technologies in the province of Ontario. I remind the committee that there was considerable investment in these systems about two years ago, but when the electricity market didn't open, many of those investors got seriously burned.

Why do we not have cogeneration systems all over? One of the big reasons is opposition by the municipal utilities. The primary reason that cogeneration systems are not widely used is opposition from electrical utilities, particularly municipal utilities. From the point of view of these utilities, each cogeneration system with the parameters set out herein reduces the utility's gross revenue by about \$8,000 per month. This revenue is removed from the utility's best customers, those that purchase a lot of electricity, are relatively inexpensive to service, and have excellent payment records.

The opposition takes the form of predatory rates, unreasonable metering requirements, unreasonable grid connection requirements and threats of imposition of debt reduction charges relating to Ontario Hydro's stranded debt. In the absence of intervention by the government of Ontario to address these issues, there will be few small cogeneration systems installed or operated in Ontario.

I would like to deal with each of these opposition mechanisms in more detail.

The first and greatest is what I call predatory rates. A practical reality with cogeneration systems is that they are mechanical in nature and must be serviced at least monthly for safety checks, lubrication and replacement of worn components. That means you have a machine that's generating 100 kilowatts of electricity, but you have to service it sooner or later, and generally the service interval is monthly. The minimum off time required to carry out this work is about 15 minutes. During that period, the building must purchase about 100 kilowatts of additional power from the local electrical utility. During the year 2001, Toronto Hydro charged its customers as much as \$28.72 per kilowatt hour, plus GST, for such short-period standby power. During the same period, Toronto Hydro charged its high-load-factor customers in the same rate group as little as 6.3 cents per kilowatt hour for the same electricity. This enormous rate differential is outrageous. It has the effect of putting existing cogeneration suppliers out of business and of discouraging anyone else from entering the market. To put this in perspective, prior to the amalgamation of the electrical

utilities in Metropolitan Toronto, Scarborough PUC charged only about 10 cents per kilowatt hour for similar standby power; that is, the cost of standby power has gone from 10 cents per kilowatt hour to \$28.72 per kilowatt hour.

The solution to this rate problem is for municipal utilities to provide the owners of multi-residential buildings the option of choosing the same rate schedule as is applicable to single-family homes. In the single-family home rate schedule, the electricity bill is based on the net number of kilowatt hours consumed, and costs related to demand issues are rolled into the cost per kilowatt hour. This entire issue is missing in the interim report.

I'll now address some issues that are also addressed by others in the interim report.

Net metering: the electrical output of a cogeneration system varies in proportion to the heat load available. In a multi-residential building, the heat load on a cold day in the winter is much larger than the heat load during the dead of night in the summer. The benefits of cogeneration are significantly increased if there is net electricity metering so that the cogeneration system can fully track the heat load. Otherwise, the building must operate "in fence," meaning that the building never exports electricity to the grid. With net metering, the building owner pays the utility in proportion to the number of kilowatt hours imported from the grid less the number of kilowatt hours exported to the grid. Net metering is easily achieved using a simple induction meter similar to the meter you have in your home. This is not complicated. This type of meter has the property that it runs backwards if electrical energy is exported from the building.

Municipal utilities are opposed to net metering because it forces them to purchase a portion of their electricity at the same rate at which they sell it. The municipal utilities argue that they should receive a higher rate for electricity that they sell than the rate that they pay to purchase the same electricity. Utilities use this argument to try to justify installation of expensive real-time metering systems that are sensitive to the direction of power flow. To address this problem, the government of Ontario needs to enact legislation allowing large building owners the option to use net metering. Net metering has the support of other parties and is discussed on page 17 of the interim report.

Unreasonable connection requirements: some municipal utilities are trying to make buildings that contain self-generation meet a higher equipment standard than is met by the utility itself. Subject to reasonable provisions for safety, the equipment standards for connection to a municipal utility grid should be no higher than are met by the utility itself in serving its other customers with similar voltage and power requirements. The issue of unreasonable connection requirements is discussed on pages 21 and 22 of the interim report.

Debt reduction charge: uncertainty about the future applicability of a debt reduction charge to self-generators in Ontario makes building owners reluctant to invest in cogeneration systems. At issue is the self-generation

power level at which an Ontario Hydro stranded debt reduction charge might be applied. Current discussions are around 5,000 kilowatts. This threshold could be reduced to as low as 500 kilowatts without affecting most small cogeneration systems. If this threshold is further reduced, it will become very difficult to enforce.

For example, a heavily loaded escalator is in fact a self-generator. That is, if you imagine a department store full of people and it's closing time, they all go down the escalator. That escalator is actually generating electricity, it's not consuming electricity, and that electricity is flowing out, either into the building or into the grid. Similarly, a conveyor belt carrying goods downhill is frequently a self-generator.

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In order to have enforceable legislation relating to a debt reduction charge on self-generation, it is necessary to set the threshold for applicability of this charge high enough that small self-generators such as described herein are not caught up in that legislation. Our experience indicates that the threshold for applicability of the debt reduction charge must be set above 500 kilowatts in order to make the legislation enforceable. In those circumstances, the proposed debt reduction charge would have no effect on small cogeneration systems.

This matter has the support of other parties as set out on pages 24, 49 and 51 of the interim report.

Summary: to enable installation and operation of small cogeneration systems in Ontario, the government of Ontario needs to make the following legislative changes.

(1) Provide a specific financial incentive to equipment manufacturers and non-profit development laboratories, such as the Canadian Gas Research Institute, via the Ministry of Energy to encourage the development of new or improved cogeneration technology within the province of Ontario.

(2) Provide a financial incentive to building owners based on net overall reductions in carbon dioxide emissions actually realized by cogeneration and other alternative energy systems. That is, there has been a lot of talk about reducing carbon dioxide, but right now, if you're a building owner, there's not a cent to be saved by reducing carbon dioxide other than by taking the most elementary energy conservation measures. This is a way for the government of Ontario to make a big impact on carbon dioxide emissions with almost no input of taxpayers' dollars.

(3) Require municipal utilities to offer multi-residential buildings the option of the same rate structure that is offered to single-family homes. That is not a complex thing to do.

(4) Require municipal utilities to offer net metering to buildings with self-generation. That is really the same as number 3 above; that is, if you had the same type of metering you get in a single-family home, you have net metering. It's done.

(5) Require municipal utilities to meet the same electrical equipment standards in all their installations that they require of a system with the capacity to export

electricity to the grid. That is, what's fair for Peter is fair for Paul.

(6) Remove the uncertainty regarding the threshold at which the proposed debt reduction charge on self-generation will apply. Set this threshold above 500 kilowatts.

Thank you very much for your attention. I'd be pleased to entertain questions.

**The Chair:** Thank you for your presentation. We have approximately one minute per caucus. We'll begin with the official opposition.

**Mrs Marie Bountrogianni (Hamilton Mountain):** Thank you for your presentation.

Who are these high-load customers on page 3 that are charged six cents per kilowatt hour?

**Dr Rhodes:** Apartment buildings, the same buildings. You see, what is meant by the term "high load"—

**Mrs Bountrogianni:** Private? Public? All of them?

**Dr Rhodes:** No. What's meant by the term "high-load-factor building" is a building that has a continuous demand almost 24 hours a day. For example, in an office building they may shut off everything other than between 8 am and 5 pm weekdays. In apartment buildings, things are running all the time, 24 hours a day, seven days a week. That means the ratio of the average usage to the peak usage is generally in the range of over 50%. That's what is referred to as a "high-load-factor building." In some buildings, if you can imagine a thing like an underground parking lot, where the lights are simply running 24 hours a day and it's a self-contained load, that is a 100% load factor.

**Mrs Bountrogianni:** Thank you for your recommendations.

**Ms Marilyn Churley (Toronto-Danforth):** I support the concept of small-scale cogeneration and generally support the positions you bring forward here. I wanted to ask you what your view is when you talk about what happened with the rates after the amalgamation of the city of Toronto and why you think that is happening. Is it to generate extra revenue because it's needed? In your view, why is that happening?

**Dr Rhodes:** Let me be quite candid without being accusatory.

**Ms Churley:** OK. That's a trick.

**Dr Rhodes:** The Scarborough PUC was one of the most efficient PUCs within the multiple PUCs that constituted Metropolitan Toronto. They brought in what Ontario Hydro requested them to, which was a time-of-use rate. That time-of-use rate enabled various energy efficiency measures.

Unfortunately, during the amalgamation process, the executives of Scarborough Hydro were given their walking papers and the rate structure was fundamentally changed to be similar to that of downtown Toronto, which had not done any of these innovations and which was largely a demand-based rate. The problem with demand-based rates is if you draw on that electricity for even 15 minutes a month, you pay the full shot on the



demand. That is what creates this high per kilowatt hour standby charge.

**Ms Churley:** I guess we don't have time to explore that further, do we?

**The Chair:** Not really, no. We'll move on over to the government side. Mr Gilchrist?

**Mr Steve Gilchrist (Scarborough East):** Just a quick statement, and then Mr Hastings had a question. But you might want to add to your list of recommendations that whatever we do looking back, perhaps the building code could be amended to require the design of co-gen in the construction of all new high-rise buildings as a proactive step that this committee could recommend.

**Dr Rhodes:** Quite frankly, I would like to have an hour before this committee to deal with building code issues, but we were limited to 20 minutes. Building code issues are what I'll call—I didn't think that they were quite within the purview of what you people could accomplish. I came here with a narrow set of things I thought you could do easily and we could make some forward motion, as opposed to getting caught up in building code complexities. Yes, it's very important, extremely important—

**Mr Gilchrist:** Written submissions are just as easily digested, so feel free to send that in, in a timely fashion if you could. Sorry, Doug. John had a question.

**The Chair:** You had a full minute there.

If you can do something in 15 seconds, Mr Hastings.

**Mr John Hastings (Etobicoke North):** Mr Rygier, thank you for inviting me over. I think we were at your facility near Christie last fall, right?

**Mr Rygier:** Correct.

**Mr Hastings:** In your presentation, what kind of a capital incentive are you advocating that the government of Ontario undertake with regard to the equipment standards—

**The Chair:** Answer?

**Mr Hastings:** —faster acceleration rates and write-offs?

**The Chair:** Leave him a little time for the answer. We're going to have to move on.

**Dr Rhodes:** Currently, there is a class 43 CCA standard which is very helpful in getting this equipment in. The primary thing that we're looking for right now is to turn this industry around, and what might work is a program the Ontario government used to have, called EnerSearch, which partially funded demonstration systems which were of an inherently high-risk nature for the building owner.

**The Chair:** Thank you very much. We really appreciate your input. You've zeroed in on some of the things we're looking for. It's much appreciated.

#### ICLECTRIC

**The Chair:** We'll now call forward our next delegation, IClectric, Mr Trevor Parker, owner—and looking very patriotic this morning.

**Mr Trevor Parker:** My name is Trevor Parker and I'm here on behalf of IClectric.

Ladies and gentlemen of the select committee on alternative fuel sources, I wish to thank you for the opportunity of speaking before you today. I would like to congratulate the committee for having the good common sense to look at all these sectors together—solar, biomass, wind power, alternative energy, transportation etc. After all, all these sectors are somewhat interconnected.

I am an entrepreneur who is working hard to show the business world that not only is it possible but it is actually profitable to be an entrepreneur and environmentalist at the same time. I know most would suggest that you can't be both, but I'm here to tell you that capitalism and environmentalism are a much greater fit than most would care to believe.

I'm not a tree-hugging environmentalist; I'm just an entrepreneur with a keen level of environmental awareness. I'm working on a retail concept that will sell many different types of battery-powered transportation vehicles. These will include battery-powered four-wheel cars, three-wheel cars, motorcycles, moped-type scooters, scooters, bicycles and even battery-powered boats. Whatever products I uncover that allow consumers to get from point A to point B, using battery power only, will be looked at. I will also have a division in my company for the sale and promotion of battery-powered landscape equipment. There seems to be very little public awareness of the air pollution that is caused by gas-powered landscape equipment, including lawn mowers, trimmers, blowers and hedge trimmers. Two-stroke engines do more damage to our air than most could imagine.

#### 1050

The third and final division of my business will focus on alternative energy household-related products, namely solar-powered generating systems for homeowners. I have spent the last year and a half researching all these industries, and I have been incredibly surprised by how large these industries already are in the United States. If we, as Ontario citizens, were to follow through with legislation, develop incubator-type agencies to nurture and develop this entire sector, and provide financial incentives and rebate programs for anyone who wants to sell or buy alternative energy transportation products, we would all win in the end, because we would be saving the environment and saving our health care system at the same time.

It's my belief that the best jurisdiction to follow for a business model like this would be the state of California. In my estimation, California is literally 10 to 15 years ahead of Ontario in terms of all aspects of the alternative fuel energy sector. For example, when California deregulated its electricity sector, the rhetoric started flying about how bad an idea this was. In the beginning, it was very difficult: brownouts and power shortages did occur. This follows what our provincial NDP leader has been spouting to the media recently. If this leader had continued to do his homework, he would have discovered that this was not a bad thing for California in the end.

Opening the California electricity market has opened the floodgates to alternative power generation, the two largest sectors being wind power and solar power. California consumers have taken to this in a very positive way. Many people are purchasing solar panel systems, having them installed on the roofs of their homes, and then having themselves unplugged from the grid. This in itself has been incredibly beneficial to everyone concerned. The state has lost some income because utilities have been privatized, and tax dollars have been reduced when people are removed from the grid. The state has benefited from this in that health care costs have been substantially reduced. The use of solar systems to produce electricity eliminates emissions, therefore air pollution levels drop. This reduces the health care costs related to the treatment of air-pollution-related diseases: emphysema, asthma and others. In order to fully appreciate the growing pains of this sector, it is advisable to contact CARB, California Air Resources Board.

The need for legislation to allow 100% electric vehicles on our streets is required immediately: not in six months, not in two years—now. Our world is changing rapidly, more rapidly than scientists previously anticipated. The need for us, as Ontarians, to make some very difficult but timely decisions is now. Electric vehicles are, by far, the best alternative that we have right now to help try to repair the environmental damage that we have already done.

Electric vehicles first came to be in the early 1800s. Many people have tried over the decades to develop and market these products to the general public, with little success. There have been reasons for this. The biggest problem with getting electric cars to market to date has been the range in cost of these vehicles. Battery technologies are advancing so rapidly now, that range is becoming less and less of a problem. As well, production costs are dropping due to the fact that so many Americans are purchasing these products. There are different types of alternative fuel technology vehicles: battery-powered vehicles, hybrid gas electric vehicles, propane and natural gas vehicles.

On a side note, I wish to congratulate the taxi companies of Toronto. I have worked for a printing company as a van courier in Toronto for the past two years. I spend eight hours a day driving around the downtown core of Toronto. I have seen a huge number of taxicabs using propane and natural gas. This industry should be publicly acknowledged for their clean car mentality.

Getting back to the different types of vehicles, the auto industry has worked to develop hybrid-type vehicles. General Motors produces the EV1, Honda produces the Insight, and Toyota produces the Prius. The problem with these vehicles is that the auto industry has not made any real attempt to make them available to the public. They've been producing them in limited numbers with very little fanfare. I've discovered articles in chat room conversations from Americans who have been on waiting lists for, in some cases, almost a year to purchase a hybrid. The general consensus is that the auto industry

does not want these vehicles to make any kind of major impact on the market.

One of the other interesting things that I have uncovered about hybrids is that the US automakers will not sell these vehicles; they will only lease them. This tells me that they want to maintain close-knit control of all the hybrids out there. This stands to reason. The auto industry stands to lose considerably if alternative energy vehicles make it to market. If you consider the secondary revenue streams that the auto industry benefits from, for example, oil changes, tune-ups etc, there is considerable income to lose by introducing EVs to the market.

What I am hoping is that by introducing broad-based legislation covering all forms of electric vehicles, the auto industry will begin to aggressively produce and market battery-powered vehicles.

I'm not interested in going head to head against the auto industry; I am interested in working with them. Electric vehicles are by far superior to gas vehicles in many ways. They are actually cheaper to build, cheaper to maintain, and they virtually eliminate air pollution and noise pollution. If the source of the electricity can be converted from coal-fired and nuclear to wind, solar and biomass, air pollution can be eliminated. We must work aggressively and in a timely fashion to make this happen.

The hydrogen fuel cell vehicle is the technology that almost all major carmakers are focusing on at present. Hydrogen fuel cell vehicles combine hydrogen gas and air to generate electricity, with the only by-product being water. This is a wonderful technology, but with substantial drawbacks. First, it now appears that fuel cell vehicles are not expected to be mass-produced for another few years at least. We don't have this much time to wait for another type of zero-emission vehicle. Second, hydrogen is a very volatile gas. Methods to safely contain and transport this gas must be determined. Third, hydrogen filling stations will be required for these vehicles. This means that millions and millions of dollars will have to be used to help to develop the infrastructure needed to accommodate these vehicles.

A conversation I had with a federal government employee before Christmas told me that the government's intention is not to promote electric vehicles; they are only interested in promoting fuel cell vehicles. My comment to this individual was, "Let me guess. You're going to use millions and millions of taxpayer dollars to convert the local Esso station to a hydrogen filling station." He sort of hummed and hawed. This is not going to be beneficial to Canadians in the end.

The roller coaster gas prices in this country are causing many Canadians to seriously rethink their travelling habits. We all know there is price-tampering by the oil industry. Any other industry that tried to increase their prices of a certain product so dramatically and in such a short period of time would be under criminal investigation by the federal government. Consumers do not believe governments when they say there is no price-fixing going on in the gas industry. Consumers want alternative choices to the guessing game of what the price



of gas will be today, this afternoon and even tomorrow. When you monopolize a market in this country, sooner or later you will lose. Canadians are quiet protestors. This is evident with Bell Canada's diminishing market share in the past few years. Consumers will not be held hostage by big business or government. Sooner or later there will be a backlash.

Electric vehicles do not require any expensive infrastructure development. All the vehicles that I will sell can be plugged into a standard electrical wall socket, even the cars and motorcycles.

These vehicles do move somewhat slower than most vehicles, but we believe this is a good thing. I recently heard a radio broadcast about the needless deaths that are occurring on our roadways. The story was about how young people are getting their licences at 16 or 17, going through the standard probationary measures of the graduated licensing program, and then getting killed in their parents' cars because they pushed the pedal to the floor. This begs the question, why is it that automakers are allowed to produce vehicles with speedometers that reach 190 to 210 kilometres an hour? Where in the province can we drive 210 kilometres an hour? The answer is, "Nowhere." Electric vehicles may help reduce the number of young people who die in Ontario every year. If student drivers were forced to drive only electric vehicles until they reached the age of 21 or 22, the chances of their getting killed in a high-speed accident may be dramatically reduced. This won't sit well with this age group, but it is a known fact that teenagers and young adults believe they are invincible. All too often they are proven wrong when they take unnecessary risks. This may be a painful introduction to the world of driving, but it's something that may help them to live longer.

I could go on for hours about the benefits of electric vehicles, but I only have 20 minutes to speak to you. I will finish with my recommendations for EV legislation and related issues for the alternative fuel technology sector.

(1) Electric vehicles must be made legal for use on all Ontario streets as quickly as possible. Electric cars, four- and three-wheel vehicles, should be allowed on all roads with posted speed limits up to 80 kilometres an hour. The only way an EV should be allowed on 400-series highways is if that particular vehicle is able to attain a speed of 100 kilometres an hour. Battery-powered cars that can reach this speed are out there.

Electric motorcycles and electric moped-type scooters should be treated the same way as gas motorcycles. All licensing issues should remain the same.

Electric bicycles should be allowed on all Ontario roads. Municipalities have been legislating conventional bicycles to city streets; they are generally not allowed on sidewalks. This should be the same for the electric version.

All motorized vehicles should require riders to wear helmets and obey all rules of the road.

Electric people transporters like the Segway HT should be allowed on sidewalks.

As far as licensing goes, the rider of any motorized vehicle must be at least 16 years of age and hold a valid Ontario driver's licence. This eliminates the chances of minors getting injured or killed on these vehicles. If an individual is deemed by the province to be responsible enough to have a driver's licence, he or she should also be deemed responsible enough to operate an electric vehicle.

As earlier indicated, the more we promote these somewhat slower-moving vehicles to younger people, the fewer fatalities will occur.

#### 1100

(2) Adults over the age of 65 should be required to operate only electric vehicles if they fail to pass their yearly driver's test. Students up to the age of 21 should be required to do the same. In my two years of driving, I have seen a great many seniors in large cars who should not be on our roads at all. The issue of independence for seniors makes EVs an attractive alternative to losing their licence and their independence. Studies have shown that a senior's losing his or her licence can have negative health effects due to increased depression and overall poor state of mind.

(3) An all-party, permanent governing body needs to be established in Ontario to spend its time looking at and legislating new technologies in an expedient fashion. If this agency becomes aware of new technologies as they happen instead of after the fact, they would be able to make these technologies available to the public much quicker. The same body should be responsible for developing rebate programs, liaising with other jurisdictions, and monitoring the overall movement of all aspects of the alternative fuel technology sector. Battery technologies are advancing on a very frequent basis. It is almost impossible to stay abreast of new technologies unless they are being monitored daily. This needs to be an all-party body. Politics must be removed from the environmental concerns of this province. All party members must have the same vision to make this province a better and cleaner place to live. This body would also be responsible for helping develop and nurture this new sector of our economy.

Small business and big business need a government contact that wants to help them make these technologies a reality for all the people of Ontario. Red tape must be minimized. It is a known fact that all levels of government in Canada seem to have this notion about taking as long as humanly possible to pass any kind of major legislation. Some political parties feel a need to have open forums, debates, studies and anything else that helps stall the legislative process. This new technology sector must be treated as something that moves quickly and broadly. We must keep up with changes. Manufacturers, engineers and inventors must be courted to bring these technologies to Ontario in a large way. Just as with Silicon Valley in California, Ontario should be the Silicon Valley of the alternative fuel technology sector. With wind projects, solar testing, EV manufacturing etc, there is a massive amount of money to be made in this

industry. Ontario needs to be at the Canadian forefront of these technologies. We must act quickly, as it is my belief that Quebec appears to be working toward the same goal.

The last thing this agency should be responsible for is helping manufacturers and importers with either lobbying or money to help in the extensive cost of bringing a new vehicle into Canada. Transport Canada requires that a certain number of test vehicles be made available for the purpose of testing. Transport Canada does not purchase these vehicles. The manufacturer or importer must provide these vehicles at his or her cost. An up front expense of \$500,000, \$1 million or \$2 million worth of test vehicles could cripple or kill a start-up company before it even gets started. The large automakers can afford this expense, but I can't.

Education must be prevalent at all levels of government. High school and college courses should introduce students to all forms of alternative energy transportation. Wind, solar and biomass technology should be introduced through alternative energy technology courses. This in itself will produce a new generation of environmental engineers and environmentalists with a keen understanding of present-day technologies. Driving schools should offer courses in electric vehicle driving. The principles would be the same, but the ins and outs of an electric vehicle are more simplistic than with a gas car.

Municipalities should lead by example. All Ontario municipalities should be required to utilize a certain percentage of their budget toward green vehicles and products. Landscape equipment would be included. The more these products are seen, the more interest there will be. This must be a mandated principle, as there is a certain number of managers who will be uninterested in looking at these products.

Within seven days of the launch of the Segway HT people transporter, US police agencies—for example, the Boston police—were testing these vehicles. The US Postal Service also began using them. This creates positive media coverage for electric vehicles. It also adds credibility to the whole sector.

Lastly, a simple green scale must be established. Vehicle rebate programs would be based on how green each vehicle is. For instance, an EV would be at the top of the scale due to zero emissions. This would be followed by natural gas, propane gas, diesel, gasoline etc. The higher the vehicle is on the green scale, the larger the emissions rebate it would get.

As for credits to manufacturers, this must be dealt with differently. Although Canada has not signed the Kyoto treaty, it should act as if it had.

The ZEV—zero emissions vehicle—credit program in the United States has its faults. The Big Three have begun to purchase electric vehicle manufacturers in order to obtain ZEV credits. They don't even have to produce these vehicles, just have the capacity to produce them. This doesn't help ZEVs in getting to market. Automakers are still able to produce the standard gas-guzzling pig of

a car, and we are no further ahead as society. I don't have a strong understanding of this system, so I should make recommendations based on what I do know. I do know that the credit program in the States is flawed and should not be used as a model here in Canada.

In closing, I would like to thank you for allowing me, as an entrepreneur and Ontario citizen, the opportunity to speak to you today. I sincerely hope you will make some prudent decisions about this exciting new industry.

One last thought: recently I was driving down Kipling Avenue. I drove past the Ontario Power Generation site and saw their single wind-power generator at the back of the property. It was spinning furiously in the wind. It was an incredible sight to see. I heard a little voice in my head saying, "Dollar, dollar, dollar," every time the turbine made a revolution.

**The Chair:** Thank you very much. We have approximately 30 seconds per caucus, beginning with Ms Churley.

**Ms Churley:** I heard some fighting words there about my leader on the deregulation of electricity.

**Mr Parker:** I'm sorry. I'm keen on what I do.

**Ms Churley:** But clearly we're not, in 30 seconds, going to get into that. I support many of your ideas and wish you good luck. Where is your company based?

**Mr Parker:** It's going to be in Toronto. My first retail store will open in downtown Toronto. I'm going to concentrate on urban centres, obviously, because there's a larger market. There are a lot of people in the city core who need to get around. They need alternatives to what's out there now.

**Ms Churley:** Good. Good luck.

**The Chair:** To the government side.

**Mr O'Toole:** Just good luck. I think it's great to see innovative thinking. Certainly I don't disagree with some of the interlock that's involved with the auto manufacturers wanting to slowly phase in whatever their response, electric or hydrogen.

One thing I do think is that the federal government could do something about the testing component. I think you're right. I've heard that before in some of the smaller companies.

**Mr Parker:** I heard a story specifically: a guy lost \$2 million trying to bring an electric car to Canada. They put you out of business right before you start.

**Mrs Bountrogianni:** Thank you for your interesting presentation. I'm sorry I missed the fighting words. I had to step out for a couple of minutes, but it's OK.

I'm very interested in your proposals about young people and requirements and perhaps safety issues around them. I don't know if you're going to give us a copy of your report.

**Mr Parker:** I will. I was hoping to leave something with you today. What I will do is put together a written presentation and submit it to you, and I'll make copies for everybody if that's required.

**Mrs Bountrogianni:** OK. There is a little bit of alternative fuels in the curriculum now. I've just supervised my son's grade 9 exam. There's a little bit in geog-



raphy. There's even the Toronto issue and the Adams mine issue in there. So they're starting to learn.

**Mr Parker:** Just starting.

**The Chair:** Thanks for coming forward. We appreciate your presentation.

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#### WOODLAND CHEMICAL SYSTEMS INC

**The Chair:** The next delegation is Woodland Chemical Systems Inc, Andrew Wyszowski, John Totten and Tony Moran. We'll give you a couple of minutes to get set up there.

**Mr John Totten:** Thank you very much. I appreciate that.

**The Chair:** There we are. Technology is working. Just state your names for the sake of Hansard.

**Mr Totten:** My name is John Totten. I am the chairman and chief executive officer of Woodland Chemical Systems. With me this morning are Mr Andrew Wyszowski, our president and chief operating officer, and Mr Tony Moran, our vice-president of marketing and sales and our corporate secretary.

What you're going to see in this morning's presentation first of all is a brief introduction of our company and then an introduction of our technology. We consider that our technology is in fact revolutionary. By the time you've heard our presentation, I'm hoping you'll at least agree with us that it does represent a significant breakthrough. I'd like to then cover off some of the positive impacts of our technology on our society and, to put things into perspective for you a little bit this morning, relate our technology to some of the other biomass technologies that are currently in the marketplace. I know you've had presentations about them. Finally, I want to describe for you where Woodland Chemical Systems is going and show you a little bit about our future. Then, as you've asked that we do, we have a series of recommendations that we're putting forward for consideration by the government.

I hope everyone can see that. If not, I think you've already been given our handout package, which has the slides in it.

I've introduced ourselves to you this morning. Now I'd like to introduce the company, so if we can flip forward, Andy.

Woodland is a privately owned, Ontario-based company. The company itself has existed for nearly three years. However, and most importantly, there have been nearly 12 years invested in the development of our technology which is known as catalyzed pressure reduction, or CPR. We have patent-pending status today on that technology. We have additional patents that we are developing and that we'll be making application for.

CPR converts biomass materials to both biochemicals and biofuels. The key process advantages that we see: first of all, our technology operates on the basis of clean air throughout the complete process cycle. In the other presentations you've seen, and for various other alternate

fuel solutions, one of the difficulties is that while the fuel itself may represent a very friendly environmental solution, to get to that point requires significant pollution development. A couple of examples: electrical power, where it's being generated in coal-fired stations; hydrogen, for example, and I'll talk a little bit about hydrogen this morning. The creation of hydrogen first of all requires substantial cost and, second, frequently generates substantial amounts of pollution materials as well. Not only does our technology not do that, our technology utilizes renewable resources all the way through. Finally, the result of that is the production of a variety of alternate fuels: ethanol, methanol and others I'll talk to you about in a minute.

To give you a brief overview of our company in a nutshell, first of all we design, build and sell highly efficient chemical plants that operate on an extremely profitable basis. To put that into a little bit of perspective for you, our pro forms show that the operation of one of our plants will typically produce a return on investment of greater than 100%. In other words, the plant will pay for itself in less than a year for the owner of that plant. That's quite incredible when you consider that the cost of our plant is US\$25 million.

Our technology, the CPR technology, is not sold along with the plant but it's provided instead under licence to the plant owner. We retain the environmental benefits that are created as a result of the plant for Woodland. It's part of our pricing strategy. Nevertheless, the plants still produce the kind of economic return I talked about earlier.

The costs of our plants are indeed relatively low, as I'll show you in just a minute. Finally, we support the owners of the plants in every aspect of plant ownership, all the way from funding support and assistance through to maintenance of the plants, marketing of the products and so on.

Our plants are significantly smaller in scale than conventional petrochemical plants. Typically today a petrochemical plant starts at about half a billion dollars US and goes up. As I mentioned before, our plants start at US\$25 million. That makes our plants highly attractive to small, local owners and it means that there are a number of advantages when compared to the half-billion-dollar facility.

We sell our plants on a turnkey basis. In other words, we build the plant, we test the plant, we commission the plant and only when it's operating at commission capacity do we turn the plant over to the owners to operate from thereon. Because of the size of our plant and the relatively low cost, it certainly supports regional deployment. So rather than one great, huge, massive facility in some location, which then has the difficulty of distributing its products through distribution methods, our plants can be located close to market.

The CPR process is emission-free in every single aspect of the process. CPR can produce a wide range of petrochemical derivatives, which are biochemicals, and a series of alternative fuels. In fact, our ambition is to

eventually be able to offer plants that will produce every single form of fuel or chemical that is being produced today in the petrochemical industry and in other industries as well.

What we do is convert biomass materials, which are not only a renewable resources but in fact themselves constitute significant pollution problems. I'll give you a couple of examples of that. Wood waste in North America today is a major problem. For a long time, wood waste was being dumped into lakes and rivers, old mine sites and so on, or it was being burned. All of those things have been eliminated or severely restricted. It is still a problem, but no longer can companies simply get rid of it. For example, here in the city of Toronto there are a number of furniture manufacturing companies that use a great deal of glues and resins in their process to manufacture furniture. They cannot dispose of that wood waste material here in Ontario, so what they're doing is shipping it, much like Toronto's garbage, all the way to the state of Michigan, paying \$50 a tonne to ship it down there, plus tipping fees. We can use all of that biomass material, all of that wood waste, even with the glues and resins; those will go through our plant with no problem whatsoever.

As I said before, we operate in small-scale modular plants. Our plant technologies are all skid-mounted modular design. The manufacturing partner that we have, which is Thermo Design Engineering located in Edmonton, Alberta, has been in business for 27 years now. They're in their 28th year. They manufacture petrochemical and chemical plants and build them all around the world. They too have followed the skid-mounted modular technology concepts for all of their existence. Of course, as I mentioned before, the smaller-scale local plants promote regional deployment and highly efficient operation.

Let's take a look at the process, just to help explain it a little bit better to you. First of all, the input is biomass material. It goes through gasification. Gasification is a well-known, well-proven technology. It was created back in the early 20th century. It was used by Britain and Germany in the Second World War either to fuel street lamps or to produce a product called gasohol, which was used in place of gasoline for trucks, tanks, military vehicles of all kinds. So it's a well-proven technology. Then it runs into CPR, our catalytic pressurized reduction process, and from there it goes into purification or refining. Again, refining technologies are well known and well understood. Both of these technologies are incorporated in literally thousands of plants around the world today.

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Our biomass input is roughly two tonnes per hour of all types of biomass. When I say "all types," we can use everything; we can use logs, bark, chips, sawdust, coated or chemically treated wood, as I said before, or beetle-invested wood. A good example of that is in British Columbia, where the pine beetle is a major problem. I had no idea how big it was until I was out there many

months ago and realized how many tens of thousands of hectares of their forests are now infected by the pine beetle.

A quick story: in the first year, you cannot tell a tree has been infected by the pine beetle. It gets cut down, turned into dimensional lumber and all of a sudden you discover you've got all kinds of lumber that has these blue-green stains on it, and either you can't sell it or you sell it below your cost. By the second year, the only thing those trees can be used for is to produce logs for log cottages or log homes. I don't think either one of those is exactly a growth industry. By the third year, the tree has begun to check and it can no longer be used for any purpose. The worst part is that not only no longer can you use that tree, but it's now occupying land space that you could be growing other trees on; but because no one gets paid to cut it down or do anything with it, the trees simply stay there until eventually they fall over and rot. We can continue to use those trees as input to our technology all the way through until the tree has rotted so far it has literally turned into soil.

But in addition to that, we can use other cellulosic materials. For example, we can use organic residues: paper, cloth, plastics and all forms of organic waste. We are working right now with a regional government where we're investigating the possibility of building a showcase plant in their state-of-the-art waste treatment facility and taking a great deal of their waste and developing, through R&D methodologies, the ability to take even more of their waste as feedstock into our plant facility. Think about what that might mean for the world. Localize it: think of what it could mean for the city of Toronto.

Our plant chemical outputs today include methanol, ethanol, acetic acid, vinyl acetate monomer, formaldehyde and something I'm going to speak more about in a minute, hydrogen. As you can see here, what we can do is essentially use biomass to replace fossil fuels. Petrochemical plants today are known to be one of the largest sources of pollution on our planet. We have a technology that replaces that and produces exactly the same end products, far less expensively and far more efficiently.

Let's talk about some positive impacts of Woodland's technology. First of all, as I said before, our technology is totally positive, from an environmental impact standpoint, throughout. There is no stage at which our technology creates pollution. There are no toxic discharges or residues at any stage. We consume underutilized renewable resources: wood waste, municipal waste etc. We provide a broad range of alternative fuels and other products. We've got a series of smaller plants that can locate close to markets and feedstock sources. Finally, what we're doing is supporting the forest products industry itself. For example, consider that the forest products industry today typically utilizes only 50% of a tree when it cuts that tree down; the rest goes into waste. We can use all of that waste to create products that are of service to mankind.

If we look at traditional industrial chemical production, first of all, it's dependent, as you know, on fossil



fuels—either petroleum or natural gas. It's an essential feedstock. Those things are scarce, they are expensive and they are, quite frankly, running out. We are consuming more of them every year than we're finding. The typical processes that are out there today, even with modifications and improvements that have been made over the years, still produce substantial greenhouse gas emissions—in fact, some of the most heavily polluting plants in the world. In addition, fossil fuel consumption and CO<sub>2</sub> emissions can be reduced significantly only when current petrochemical production methods are replaced. We have the technology that will in fact replace them.

There have been all kinds of coverage about this in every type of magazine you could imagine, magazines from *Fortune* to science magazines, all talking about when the invention arrives that will be able to use biomass in place of petrochemicals. We are here this morning to tell you that we have that technology and we have a patent pending on it. We have not been able to find anything anywhere in the world that compares or competes with what we have, either economically or environmentally.

If we take a minute to put things into perspective and look at some of the other technologies that are out there today, cogeneration certainly is an advantage: it absolutely consumes waste biomass materials, no doubt about that. But there are also disadvantages. It still emits typical combustion-associated contaminants: greenhouse gases, NO<sub>x</sub>, particulate matter—not exactly good for our environment.

If we go to ethanol production, you've seen presentations on ethanol production. Some of the advantages of that are, of course, again, that it generates alternate fuel products—that's a plus—and it utilizes biomass materials—another plus. But again, it has disadvantages: very inefficient; does not utilize the whole carbon input; always generates significant CO<sub>2</sub>, which may or may not be captured and sold; and finally, the energy efficiency is limited by the process consumption itself and by restrictive product formation.

If we look at bio-diesel production, the advantages of bio-diesel production are, again, that it generates an alternate fuel product, unquestionably, and utilizes biomass materials. But its disadvantages are that it does not utilize the entire carbon input, the fuel products are low BTU value and very limited-use, and it produces carbon dioxide, which is exactly what we all want to avoid.

Where are we going as a company? Woodland is certainly focused on maintaining high standards of design and creating no pollutants at all stages of our process, as we've said before. We want to continue with our process of invention to create significant numbers of additional products based on our technologies. Finally, we want to clean up the environment by continuing to replace technologies that pollute at any stage in their process and remove, by using as a feedstock, materials that themselves represent an environmental hazard.

We will also continue to deliver solutions that are cost-effective, offer very high rates of return on investment, are available to smaller business owners and provide significant environmental benefits wherever and however that measurement is taken. Finally, we will continue to produce dramatic new product breakthroughs through intensive research and development efforts.

Society has long considered hydrogen to be the ultimate fuel product. I think all you have to do is take a look at the awareness that exists out there in the marketplace for companies like Ballard or Stewart Energy, located right here in Toronto, that are able to raise a dramatic amount of money. In fact, their move to the market was oversubscribed by 10 times, which meant they could have easily raised \$1.5 billion. They raised \$150 million for a very small household-based technology that generates hydrogen, which still produces pollution.

In line with our product goals of producing dramatic new product breakthroughs, Woodland has now completed the process design work for the production of hydrogen. Ladies and gentlemen, I would tell you that we are announcing that this morning to this committee for the first time that information has ever been made public. We have a plant design that is capable of producing hydrogen at costs not just below but dramatically below any competitive method out there today, and there are three of them. We do it from a renewable resource and we do it with absolutely no pollution. All of a sudden, the world of hydrogen fuels becomes just that much more practical.

Let's talk briefly about what we would like to see the government do. First of all, I want to refer back and quote from Mr Don O'Connor, who in his presentation to you in representation of the Methanex Corp said, "It is never easy for new technologies and new products to make it in the marketplace no matter how attractive they are to consumers and governments." Boy, is that true. As an organization, we have been in the process of funding ourselves, raising money to support and grow our company, and it's quite amazing the number of people we can show our technology to, prove that it works, give them some feeling for how substantial the opportunity is, and they still hang on to their wallets and decide, no, they're not going to participate just yet. "Once you've proven it a little bit further"—I'm not sure what that means, but in any event—so it is difficult.

Therefore, if Ontario is to be serious about encouraging the development of alternative solutions, it must be willing to consider, we believe, all forms of tools to encourage development, everything from grants to subsidies to tax incentives, imposing strict emissions limits on technologies that are out there today and, finally, full endorsement of the Kyoto accord. It's incredibly disappointing that the United States government has not signed the Kyoto accord, because they are the most heavily polluting nation in the world. But the fact is, many of their states are taking steps. You heard a previous speaker this morning refer to the moves that are

being made by California, and there are many other states that are taking very aggressive moves to promote and support elimination of pollution. Well, we think that the Ontario government and the Canadian government should strongly endorse the Kyoto accord.

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The province should also consider providing incentives for those corporations that are prepared to be the purchasers of technologies that offer environmentally sound alternative fuel solutions or their end products. Motivating the early adopters, the people who are going to buy new technologies like this, is absolutely critical to making sure that they work, making sure that they're brought to the market and making sure that our society can enjoy the benefits that they will produce. The strongest motivator that we're aware of is financial, and that is one action that can certainly be taken.

Finally, we also believe that the government itself should become an early adopter of a technically and environmentally sound technology or the end products. We would strongly encourage the use by the government of electrical vehicles or hydrogen-based vehicles or other steps that can be taken by the government in many areas to foster and encourage the development of environmentally friendly solutions.

At this point—that concludes our presentation—we would like to open it up and invite any questions you may have.

**The Chair:** Thank you very much for the presentation. Unfortunately, we are over the 20 minutes. We are going to have to move on, but your technology is intriguing and we really appreciate your coming forward with it.

**Mr Totten:** We appreciate the opportunity to present to you this morning.

#### CANADIAN RENEWABLE ENERGY CORP

**The Vice-Chair (Mrs Marie Bountrogianni):** I'll let you get settled and start as soon you would like: Mr Gillette from Canadian Renewable Energy Corp. Welcome back.

**Mr Patrick Gillette:** I want to begin by thanking the Chair of the select committee on alternative energy, the Minister of the Environment and the committee members for allowing CREC, Canadian Renewable Energy Corp, to make this deputation in response to the committee's interim report.

CREC, to reiterate, is a private developer of renewable energy assets. CREC will finance, build and sell green power in the province after market opening.

The Canadian Renewable Energy Corp is the only company that we are aware of that is proceeding to build a renewable energy asset in Ontario this year. The shift since we last made our deputation is that CREC has received its approvals from the Ministry of Natural Resources and will be proceeding to build a \$6-million run-of-river hydro plant that will be producing 15-plus gigawatt hours of renewable energy by this time next

year. CREC has plans to invest, in equity and debt, over \$400 million in the next seven years to construct in excess of 200 megawatts of capacity, which will include water power, wind, biomass and biogas projects.

The mandate of this committee, as I understand it, is to investigate, report and recommend ways of supporting the development and application of environmentally friendly sustainable alternatives to our existing fossil fuel sources. I will constrain my comments today to the interim report's discussion of definitions of green power, green power marketing and what potential incentives the government could consider to create a level playing field.

The federal government is currently holding public consultation on their EcoLogo program. EcoLogo does provide a definition of what is considered renewable energy or green power. Numerous EcoLogo critics exist, and CREC agrees that there are alternatives that may be superior. However, no other program is so widely accepted as yet in Ontario. Furthermore, many of the critics have their own agendas, driven by factors as far-ranging as ideology to economics.

CREC believes that the Ontario government should accept EcoLogo as the minimum baseline standard in Ontario for building, operating and selling renewable energy, that is, green power. To do otherwise would create instability in the Ontario market. Intervention would only be required if federal actions negatively impact on the development of new renewable energy in the province of Ontario.

The definition of green power leads directly to marketing issues. Without clear standards, the retailers are vulnerable to criticism. This criticism will be targeted at eroding public confidence in the product the retailer is selling, that is, the accusation that the seller is taking advantage of the consumer and not selling "green" power.

This problem is not helped by the occasional claims of large water power and, at times, nuclear producers that they are renewable or clean, regardless of the validity, or lack thereof, of their statements.

What is needed is a public education program. Consumers need to understand that they have a choice and can make a difference by the electricity they consume; that they are part of the problem—that is, their electrical consumption contributes to environmental damage; how the renewable energy will be sold to them; what is renewable power; what is EcoLogo; what questions they should ask the retailer.

The Ontario government can take a leadership role by educating the public. Why is this important? Because marketing is crucial to the success of green power sales. It has been observed in other jurisdictions that the success or failure of green programs rests with marketing. Retailers must go forward and promote their green products with confidence if they are to create a market. An informed public will contribute greatly to establishing that market.

What are the important variables to that market? From our research, first is consumer confidence that what they are purchasing benefits the environment; second is an



ability to sell the product to consumers' "willingness to pay" scale. To do this, retailers must have flexibility in how they sell their products to various "willingness to pay" levels. As an example, most consumers will only want to pay a small premium for green. A smaller group will have specific demands and be willing to pay more. The government should work with industry to put in place measures that inspire consumer confidence and flexibility of sales and pricing.

CREC believes there will be three methodologies to sell green power in the Ontario market: a percentage of EcoLogo mixed with standard supply; certified marketing packages; and green tags, which is the separation of green attributes to be sold on a differences contract while the electricity is sold as standard supply electricity. Essentially, you're separating the green part and the electrical part, and selling them separately on different contracts. Licensed retailers are the only entities that can sell EcoLogo mixed with standard supply, which limits the number of entities that can market green power using this format.

As an alternative for retailers, there are certified marketing packages, which are a step above EcoLogo mixed with standard supply in that they attempt to quantify clearly the mix of electricity, and exempt certain forms of generation and include others. Clear reporting and labelling standards are needed if these types of initiatives are to be successful. Why it is in the government's interest to support such programs is that it widens the marketing effort for green and may encourage the production of low-impact, non-renewable power; as an example, cogeneration. CREC is involved in one such initiative, Clean Energy Ontario, which is focused on creating a marketing package that offers consumers a choice based on their willingness to pay.

Green tags may be the most flexible alternative. Because no electricity is actually sold, it would allow a wider set of organizations to market green power. This would include non-governmental organizations. This would increase the likelihood of every community in Ontario being able to purchase green power. CREC believes that for a green tags initiative to succeed, what is required is a separate license to sell green tags; a way to verify the separation of green tags from standard supply electricity; a way to quantify and label what is sold as green tags; a way to transfer the green tags across jurisdictions and, if necessary, reattach them to standard supply electricity for sale as green power; a way to bank green tags for future sale; and a way to ensure that the green tags are not sold more than once.

Furthermore, green tags may be a way to resolve, in part, cross-border exports of green power. If Ontario can integrate a green tags program with our neighbours to the south, there is no need to actually transmit the electricity. This should resolve, in part, the trade issues raised during my last deputation.

Green tags also include the emission credits. CREC believes that under no circumstances should the emission credits be separated from the green tags. Emission credits

are a way of calculating the environmental benefit. Their extraction would devalue green attributes and indirectly lead to the double selling of green electricity.

Where the government can also take action is to continue to structure a "cap and trade" emission credit system that would allow industry to buy green tags or electricity and then extract the credits to meet their cap. This would set a market value for emission credits, set a market value for the corporate goodwill generated by purchasing green power to meet environmental objectives, and give a clear incentive for industry to purchase green power. However, this should only be allowed for the end user of green tags or green electricity.

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In summary, CREC is recommending to the committee that the government create a public education program, create the necessary structures to assist marketing efforts, and encourage diverse marketing strategies through industry consultation and changes to current regulations.

As mentioned in our previous deputation and the committee's interim report, this could be organized through a separate department created to encourage renewable energy development. Funding for such an effort could be imposed on the sale of standard supply power—a cost measured in the fractions of a cent per kilowatt hour. Part of the mandate of this department would be similar, or could be similar, to that of the United States Department of Energy's Green Power Network. Their Web site is enclosed in this deputation. In fact, the government could simply build on what the DOE has already created.

The final comment CREC would like to make is on how government can encourage the growth of renewable power in Ontario. I believe the best way for government to act is to focus on new renewable generation. Various groups with existing generation have their issues. Regardless, the economic and environmental benefits are going to arise from stimulating new development. In meeting the concerns of the groups with existing generation, the government should be focused on encouraging them to upgrade their facilities and put in place new generation.

CREC has raised and the committee has taken note of the need for a level playing field. Related to that, we would like to make the following observations.

Ontario Power Generation currently has approximately 125 megawatts of EcoLogo certified old green. This provides OPG with an unfair market advantage. Unlike the standard supply market, OPG's Evergreen program is not being forced to reduce to a 35% market share. This oversight is understandable, but the renewable market is separate from the standard supply market. OPG has defined its supply of green and separated it from other assets, creating a separate market.

It seems to CREC that the government policy is inadvertently inconsistent in its treatment of the standard supply market and the green market unless it forces OPG to divest down to 35% market share. Fortunately for the government, OPG has declared openly its supply of green

power, which could be ratcheted down in tandem with OPG's standard supply market share to 35% by 2010.

CREC believes the government has numerous options to encourage the growth of renewable energy:

Exempt PST payments on equipment for renewable energy projects for the next 10 years. Give Ontario developers the same advantage as our Alberta counterparts;

Production tax credits;

Create a flat fee or allow for no-fee hook-up to the grid;

No transmission fees for new green power;

Force landfills to put in collection systems so they stop emitting methane into the atmosphere, a greenhouse gas with 20 times the impact of an equal amount of carbon. By forcing collection systems into place, you immediately stimulate electrical generation at these sites because suddenly it's flared and can be accessed easily;

Ensure the MNR's new water power policy is implemented as soon as possible;

Match the federal government's green power purchasing program in Ontario.

Additionally, it was raised in my last deputation as to whether a provincial Canadian renewable conservation expense flow-through could be viable. We have put some thought into this concept and believe there are two options: copy the CREC flow-through but loosen the restrictions on expenses—allow for 100% flow-through of all expenses if tied to the building of a specific project; allow legitimate expenses to be flowed through to the investor prior to and after they have been incurred within a two-year period.

All of these efforts and others could be funded by a surcharge to the sale of standard supply electricity. How better to level the playing field? The amount can be as little as one tenth of a cent per kilowatt hour sold, which would generate approximately \$140 million per annum for the government. In many respects, such a charge which was then used to promote renewable energy would be superior to a renewable portfolio standard because it could provide the same stimulus while preserving a free competitive market structure.

Another alternative, which is not included in my written deputation because I heard it last night on the radio driving home: Australia is putting on their retail licences a carbon cap. If you cap the retail seller and force him to go out into the market, you get the same result as with a renewable portfolio standard, but you force the retailer to go out and take many activities to meet their cap, which I think is the most innovative idea I've heard in the market in a long time.

I want to thank the committee once again for its time and kind consideration. I also want to congratulate and thank you for all your efforts to date. If time allows, I would be happy to take any questions.

**The Vice-Chair:** Thank you very much for your presentation. We have two minutes per caucus, starting with the government members.

**Mr Hastings:** Mr Gillette, what is innovative about the New South Wales proposal?

**Mr Gillette:** It's attaching it to the retail licensor. If you're looking for a methodology, from my perspective, of trying to stimulate green purchasing and to set up a green marketing program, if you attach the cap to the retail seller, he has to go out and meet his cap or pay a penalty. So if I'm selling electricity—if I'm Toronto Hydro, for example—I have the option of encouraging conservation, I have the option of going out and buying green power and putting it into my grid normally, just a normal sale as part of my system mix. Also, I'm really incentivized to go out and create a green marketing program, because the more people I sign up and the more companies I sign up to purchase a portion or all green power, the easier it is for me to meet that cap. So it just forces the industry, the retailer, to hustle and think of ways it could possibly meet its cap by just selling green power and reducing the use of electricity. It incentivizes on both ends.

**Mr Hastings:** This is consistent with the commonwealth government's approach there, in the creation of renewable energy certificates.

**Mr Gillette:** Exactly.

**Mr Hastings:** They work together, I assume.

**Mr Gillette:** They're farther along than we are. We're struggling with these ideas.

**Mr Hastings:** They're way ahead of us.

**Mr Gillette:** Yes.

**The Vice-Chair:** There are 30 seconds left for the government. Does anyone want to take them?

**Mr Gilchrist:** We'll pass.

**The Vice-Chair:** OK. May I ask a question, even though I should really be sitting over there to ask a question? Is that OK, Mr O'Toole.

**Mr O'Toole:** Agreed.

**Ms Churley:** You should step out of the chair.

**The Vice-Chair:** Thanks for your understanding.

I read on your Web site about your promotion of an industrial green power pool in Ontario. For the sake of the rest of the committee, can you talk a minute on that?

**Mr Gillette:** It's called the Ontario clean power pool. The concept which we are promoting is to pool renewable energy and have business and industry guarantee that they're going to purchase up to a certain level, as the power is provided. For example, an industry can commit, "We're going to buy five megawatts." Let's say we have 10 groups that are buying five megawatts, so that's a total of 50 megawatts. As that power goes into the pool, the industry has the option to take a certain amount equal to their percentage out of that pool. Basically, it's used as a mechanism to provide the supply based as a percentage of commitment, and it also gives us one way of creating a power purchase agreement, which we can then leverage for financing for our projects.

**The Vice-Chair:** The third party?

**Ms Churley:** I think your presentation points out some of the gains since you were last here, but also the complexities of what we're trying to do here. My



question is, how are you or your sector involved, as the government begins to reach its goal of complete deregulation, in trying to figure out how to get this done?

**Mr Gillette:** We're involving ourselves where we can. We're a developer. We want to build renewable energy assets and sell our power and make money for our shareholders from this process and use that further investment to build new renewable energy assets. Where we find a venue to discuss the issues we're encountering—because we're one of the few companies going out and selling the green power, we run into retailers, so we get their input all the time.

There is a desire to sell this power on the retail level. We go to trade shows and we also go to general public shows and we know people want to buy this power and have an interest in it. The question that comes up is how the market is going to form up and where the government can find roles for itself. I believe the market is there, and I think it's going to be a much larger market than most groups expect, but it depends. If everything is done right, we'll see a great development of green power in the province. If it's not done properly, we could see the market sort of stumble or stall on us, which of course terrifies us, to be honest. The actions the government takes will impact directly on how—

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**Ms Churley:** Exactly, and it's so critical. I really have my doubts. I don't need you to go there and get political here, but I have my doubts about the process that's in place and I'm very concerned about it. Is there a process for you within OPG/government to participate in how this is all going to unfold for alternative green power?

**Mr Gillette:** Not one that I'm aware of. There is no process. This is why we've recommended the government set one up.

**Ms Churley:** So this is something this committee really should be looking at and recommending be done.

**Mr Gillette:** If I can go back to the point I made about the 125 megawatts that OPG has, it is rather like saying to the larger standard supply market, "OK, here is a \$10-billion-a-year industry with 125 megawatts of supply already paid for. You go compete against them." It's like saying to TransAlta, "We're going to let OPG keep all its assets, but you come on into the market and you compete against OPG."

**Ms Churley:** And it's doomed for failure if that happens, if that's the way it unfolds.

**The Vice-Chair:** The time is up. In fact, I donated half a minute of my time to Ms Churley. Thanks very much. As always, your presentations are informative; welcome back again.

**Mr Gillette:** Thank you very much for having me here.

#### RENOSCAPES CONTRACTING

**The Chair:** Our next delegation is Renoscapes, Glen Shevlin.

**Mr Glen Shevlin:** Thank you, sir. The basic plan that my company is working on is a system to use hydrogen to fuel a combined-cycle gas turbine electrical generating system. The combined-cycle gas turbine system is at the moment the second most efficient electrical generating system that we have. In my handout you'll find a short list of the different systems of generating electricity and a few pros and cons on them, and what the problems are with them. You'll have to excuse me if I'm a little nervous here.

Most electrical generation at the moment in Ontario is of two types: nuclear generation or natural gas carbon/hydrocarbon burning. Nuclear generation is the most efficient system of generating electricity up to the point where the electricity goes out the door. There are added costs on the tail end of that—disposal of nuclear waste and so on—that are very expensive. To generate electricity, you burn a fuel to heat water to spin a turbine. That's basically what it amounts to. The fuels used at the moment are coal, heavy oil—which is also called bunker C—and natural gas. All of these fuels are a finite resource and they are effectively controlled outside of Canada. If you've tried to fill your car up on a Monday or a Thursday with the gas prices going up and down, that's the same effect you'll have on natural gas. Last winter, the natural gas prices spiked because somebody outside the country decided they wanted more money.

They all produce pollution of one description or another and they all require a very large infrastructure to support the production of the fuel. You have to have a gas line running from somewhere in Alberta to somewhere near Sarnia and then from there to wherever you're using it. The infrastructure is in place, but it requires large amounts of maintenance. The coal burners need coal mines. You've got to get the coal from the mine to the point you're using it.

Hydrogen, as a fuel, has several benefits. It's produced on site. Our model uses the electrolysis process at the moment. However, I've got to talk to the gentleman from Woodland Chemical; he certainly got my attention earlier today. The fuel supply will be under the control of the plant management. The fuel generation will be on site. Waste products using hydrogen for fuel are basically water vapour, nitrogen oxide and heat. Nitrogen oxide you will get any time you burn something in the atmosphere, because we have a 70%-odd nitrogen atmosphere. It can be scrubbed out and dealt with. Further research will allow us to find a better way to get rid of it, but at the moment you can reduce it a fair amount. There's no large infrastructure required for the plant; it's all right there. There are no pipelines outside of the plant, nothing else.

This project can be done at the present time with off-the-shelf technology. The technology all exists. It's just that none of it was actually planned to be used for this particular purpose; nobody decided to put A with B to produce C. It does have a few problems because it wasn't designed this particular way. Stewart Energy Systems is in the business of producing electrolysis plants to gener-

ate hydrogen. That technology was designed to be used with the new generation of electrical cars. It's probably five to 10 years away before they can get them up and running the way they should, but the technology is usable to produce the hydrogen we need at this point.

The system is scalable. It can be done from any size, from 50 megawatt hours up to a gigawatt-scale plant. Lakeview is a gigawatt-scale plant; there are four 280-megawatt-hour generators in there.

Because it is scalable, the system will lend itself to use in remote areas or as a cogeneration plant. Over the last several months, the president of Dofasco Steel has pointed out that his biggest concern right now is the cost of electricity in the future, partly because of turning the electricity system public—I can't remember the right word for it. He figures it could cost him \$20 million to \$40 million in extra electrical costs next year alone, or when it becomes public. He doesn't know—nobody knows—because nobody knows which way the rates are going to go, but it concerns him because he's a huge electricity user. There are several other different types of businesses that could use the same system.

The big requirement at the moment is for a study to determine the actual feasibility of the plan. It will work; we've got the stuff available right now. But we don't know if it's workable from the point of view of whether or not you can talk anybody into building a plant that size. Does it make sense from a monetary point of view? I believe it does.

You can build a plant right now. The Ontario Clean Air Alliance put a study out last year on the Nanticoke generating plant on Lake Erie and they discovered that you could build a natural gas plant, which is the receiving area for the natural gas for the plant, for approximately \$56 million. That's just the gas plant. Plus you have costs to convert over the natural gas fuel of the generators themselves. That works out to about \$500 a kilowatt, or \$500,000 per megawatt. You multiply it up from that point depending on how big a plant you want. You can build an electrolysis plant for approximately the same cost as you can build a natural gas plant.

The big bonus with this is that at the end of the day you don't have to pay for the fuel. When I did this, natural gas on the spot market in Chicago was about 10 cents a cubic metre. That was last winter so it's probably a little lower now, but when you're using 61 million cubic metres of natural gas, the price does get up there rather quickly.

As I said, the processes and systems are in place right now. We could build this. It wouldn't work all that well, because nobody's actually designed it this way. Gas turbines have been run off of hydrogen. Because of the difference in the energy output of the hydrogen and the speed that it burns, some engineering would be required to optimize the plant. The president of Siemens Canada, who deals with these things, has assured me that if I can come up with a way to produce green energy, he'd be more than willing to invest some money in designing a gas turbine to burn the hydrogen. If he gets clean energy

he can sell on the worldwide market, he's not too worried about the cost of designing the gas turbine.

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The electrolysis process requires electricity to start it off. That would be generated by wind turbines, biomass systems—there's any number of ways that it could be generated. Wind turbines are a nice system because they're renewable and they don't cause any pollution. The disadvantage is they only run at about 30% efficiency because of the wind. But with a storage plant and everything else lined up, it can be done right now; whether or not it can be done efficiently is the big question. On that point, we're trying to line up people to do a study right now, but people don't want to get interested in anything they don't totally understand or if it goes against what their current views are or what their current products are.

The government could help with any number of these systems, basically with a grant system for alternate energy programs. I haven't been able to find a provincial program to study these things. I can understand the situation with the government and money and everything else, but at the same time, you're going to be saving yourself money at some point.

That effectively concludes what I wanted to talk about.

**The Chair:** Thank you very much. We have about two and a half minutes per caucus, beginning with the official opposition.

**Mrs Bountrogianni:** Thank you for your presentation. Many of your points we've heard from others as well, which confirms and validates what you have said. I am curious about, and I believe Ms Churley asked this earlier of another presenter, your perspective on the deregulation issue and the lack of knowledge of what the cost of electricity will be. That is one of the barriers? If you could talk a little more about that.

**Mr Shevlin:** I don't know enough about how the system is being deregulated. California and Alberta both provided pretty good—I guess "lessons" would be the best way to describe it, on how not to do it. If those lessons are learned, I don't think we'll have a serious problem. My big concern right now is a system of reducing the pollution output from these plants. They're big polluters. Nuclear waste can be dealt with, but I guess a lot of people don't have the nerve to actually sit down and deal with it the way it can be dealt with. A lot of it's bad news, but it can be dealt with. But a lot of people would rather stick their head in the sand and say, "Let's bury it for 20,000 years." It doesn't work.

Greenhouse gases, which are the main production of coal-fired and natural gas plants, are a problem. Once again, it's just a question of dealing with the problem.

Society requires electricity. There's no way we can do without it right now. Deregulating it is a way, in theory, to bring lower prices. If the lessons that have been learned elsewhere are applied here, we shouldn't have a problem—until we find new problems, but they always pop up anyway. There will be some, but what can you



do? If you don't know what the problem is, you can't solve it beforehand.

**Mrs Bountrogianni:** That's the issue, I think. Thank you very much for your presentation.

**Ms Churley:** I just wanted to ask you a question. You have a bit of a vision about how we make that leap from mostly theory about this now to making it happen. We know it can work. Are you aware of other jurisdictions that are more advanced than we are in getting this on the market? What do you advise us to do to go from knowing that it can be done and making that leap and putting stuff in place so that we make it happen? You mention that there are groups that don't want the status quo changed, and we'll deal with that when we come to it, but it's a big challenge.

**Mr Shevlin:** Yes, it is a big challenge. As far as this particular system of using hydrogen goes, I don't believe anybody has actually looked at it, the reason being that it was a great deal more expensive up until the power cell system for cars came out. Now people are looking at electrolysis. It's been around since—

**Ms Churley:** It's been around for a while.

**Mr Shevlin:** —the 1880s. Most people do it in high school chemistry class. The hydrogen is producible. It's renewable because when you burn hydrogen with oxygen, you get water. It's renewable. The Great Lakes have fallen, but there's plenty of water there for what we need.

Some places aren't going to be too thrilled about the idea of changing from, say, natural gas to hydrogen. For example, Enbridge sells natural gas to these plants and it's probably a billion-dollar profit for them, until somebody points out that you are probably going to be able to sell the same amount of gas to residential customers at three times the price.

People are happy with their profit margins and the systems that they know work. They have no real incentive to go out and try to do something different. Why would they? Everybody is happy.

**Ms Churley:** So it's going to take some government initiative and policy changes and things, in other words, to make this work.

**Mr Shevlin:** I've never been a big fan of government initiatives and government—I hate to say “interference.” In my opinion, the best position for the government is in supporting people, industries, schools or whatever that are coming up with these ideas. If you get an idea that will make something else obsolete, great, but the problem is that nobody is willing to finance it. It would cost about a billion dollars to build a plant like this, which is on the same lines as a natural gas or coal-fired plant. But nobody really wants to do it because it's something they've never tried before. People like the stuff they understand. That's the best way I can describe it, I'm afraid.

**Mr Gilchrist:** I just had a quick question. First, thanks for coming before the committee today. We appreciate your taking the time and your thoughts here. You talk about the need to move from theory to practice, and I

wonder if you've given any consideration to relatively easily acquired sources of hydrogen, for example, using off-peak nuclear power to crack Lake Ontario water or Lake Huron water, and therefore the potential location of any test plant that you might want to develop.

**Mr Shevlin:** The idea, when I came up with this, was to make it totally independent at the production end from requiring electricity from the usual sources. You lose some of the point of trying to do something totally green if somewhere down the line you're producing something that's not in line with your objectives. Off-peak power is inexpensive and it would be used as a backup just in case, for example, if in the middle of August you've had three weeks of southern Ontario humidity and no wind. If you don't have the power to crack the water, yes, you hit the off-peak power and load up your hydrogen so you can continue operating.

The location of the plants is not serious. You could actually use municipal water to supply the amount of water you need. It's about a thousand to one. A cubic metre of water will produce a thousand cubic metres of hydrogen plus oxygen. So the location isn't really serious. I don't know if that actually answered your question or not.

**Mr Gilchrist:** You clearly have considered the idea. My only point was that at the design stage, rather than also looking at the engineering required to develop a new stream of energy, being able to at least perfect the turbine technology by using off-the-shelf, as it were, off-peak nuclear power might—

**Mr Shevlin:** Simply things?

**Mr Gilchrist:** —simplify it and make it a little faster if you were to bring it to market.

**Mr Shevlin:** Right now, all the technology is in place. If you drive along the 401, you can see the windmill down by Pickering. I think it's a 1.2-megawatt turbine; I could be wrong. That technology is in existence and it is, I don't want to say “mature,” but a solid technology. It will produce the electricity required. The added bonus with a wind turbine is that it's DC current, as opposed to alternating, and you need the DC current to crack the water. That was a minor bonus I found out about after the fact, but it's still the same thing.

The place that government could take in this is, if there's a feasible idea, regular sources of capital will not support things like this. The government could provide grants or incentives of some sort for somebody else to invest in it. That's the big problem.

I was talking to the Ministry of the Environment last summer and nobody had anything in the way of grants that they could say, “OK, apply to this.” It just wasn't there, which is a problem. You end up having to go to the federal government, and we're still four months into waiting for forms. It's literally that bad.

It appears my time is up.

**The Chair:** It is. Thank you very much. We appreciate your coming forward with some good information.

## 1210

## TORONTO TAXI ADVISORY COMMITTEE

**The Chair:** Would the committee look at our next presenter, item 7 at 12 pm, and put in an "i" after "Tax." It changes the organization slightly. Instead of the Toronto Tax Advisory Committee, it's the Toronto Taxi Advisory Committee, Gerald Manley, member. Thank you for coming before us. Sorry for the wee bit of confusion a few minutes ago.

**Mr Gerald Manley:** It would be nice to be representing that. Maybe I could do something on my own.

**The Chair:** It might be more profitable.

Please state your name clearly for the sake of Hansard.

**Mr Manley:** My name is Gerald Manley. I'm a taxi owner and operator in the city of Toronto; I have been for approximately 30 years. I'm here today as a representative of the Toronto Taxi Advisory Committee, which is composed of Toronto taxi industry members. It was officially formed by the city of Toronto and was mandated to report to the city on issues involving the taxi industry. It represents well over 10,000 taxi drivers and owners who currently work full- and part-time in the taxi industry in Toronto.

Actually, your committee's inquiry into this subject matter is rather timely as on February 19, coming up, I will address the Toronto subcommittee on planning and transportation licensing issues on the subject of natural gas as an alternative fuel source in the Toronto taxi industry.

There are several important questions that need to be asked when applying this fuel source to the Toronto taxi industry. Is it a suitable fuel source? Does it meet industry requirements? Should it have been given a two-year vehicle extension in the Toronto taxi industry? Does natural gas have fewer emissions than other fuel sources when applied to this industry? And does natural gas cost up to 40% less, as the manufacturers claim? The answer to all these questions is emphatically no.

In 1998 the city of Toronto formed a committee to reform the taxi industry. One of the recommended points which was officially adopted was that if a taxi owner would convert his vehicle to operate 100% on natural gas, he would be given a two-year extension to operate his car. Where the problem occurred in this initiative was that Enbridge Consumers Gas was the only major stakeholder allowed to speak on this proposal. Subsequently, it was passed into law in 1998 by city council. It's now part of our Toronto taxi bylaw.

It's important for the committee members here to understand that many alternative fuel sources produce data that are key to the private sector, and when applied to a commercial venue, the results are totally different. The example of this was the data that Enbridge Consumers Gas submitted to the 1998 Toronto taxi reformation committee. Because of the data produced, a bylaw change was enacted which does give the owner of a

taxicab a two-year extension if he runs his vehicle on 100% natural gas. But the initiative was really totally unwarranted.

It was strange that the reformation committee chose not to follow city of Toronto acceptable guidelines before adopting the natural gas extension. Normally all major stakeholders, pro and con, are allowed to address the issues. It's then sent back to Toronto licensing and standards for investigation. Then it is forwarded to the planning and transportation committee for review, before being passed on to city council. This procedure was not followed and it was quickly passed into law.

It also seemed bizarre to us that the reformation committee never consulted with Clean Air Ontario, which sets the provincial guidelines for emissions. The committee also never requested that Enbridge produce a commercial vehicles study on this fuel source. All of Enbridge's data are based on a factory natural gas vehicle operated in the private sector with about a 40% city usage and a 60% highway usage. The taxi industry is 90% city usage and 10% highway usage, with a large volume of idling time which dramatically alters fuel consumption and emissions.

From January 2000 to mid-May 2000, I did an in-depth study, which you have in front of you, on natural gas as it applied to the taxi industry. My study included a mileage comparison between gasoline and natural gas and also the gathering of emission data provided by Clean Air Ontario, which is the governing body for setting and enforcing emission levels of vehicles in the province of Ontario.

This data totally contradicts the claims made by Enbridge Consumers Gas. I submitted these findings to the full planning and transportation committee on May 16, 2000. Along with my study, Toronto licensing and standards produced their own study, which corroborated my findings. These two reports were taken as information only, which at that time tentatively squashed the issue.

Recently, Enbridge Consumers Gas has been lobbying the city of Toronto to mandate their new Ambassador taxicabs to operate on a 100% natural gas fuel source. This of course has reopened the issue, and I've had further meetings with the new director of Clean Air Ontario, Mr Ed Gill. Upon my request, he forwarded to me the more recent data on this issue, which is also in front of you. I've included my May 16, 2000, study.

In the following paragraphs, I've included a slight portion of the deposition which I will be giving to the subcommittee in February. The first topic is emissions. The natural gas industry claims of huge reductions in emissions were and are untrue. This is supported by Drive Clean Ontario, which is the Ministry of the Environment's office for setting and enforcing emission levels in our province. Mr Dave Petherick, who is a consultant for that office, stated at the December 11, 2001, meeting that the 3,700 taxicabs' possible negative emissions would have an atmospheric result equivalent to one drop of water in a huge bucket of water. Emission data is heavily predicated on vehicle maintenance. It is



obvious that the data provided by Enbridge was in the private sector, not in the taxicab sector, and it's normally accepted that the private sector maintains their vehicles at a higher level.

Fuel savings: The natural gas industry claims there would be as much as a 40% fuel savings in the usage of their product. A chart in my May 16, 2000, report clearly shows that was and is untrue. At present, with natural gas priced at about 49.9 cents per litre and gasoline between 51.9 and 62.9 cents per litre, it now costs 20% to 40% more to operate on natural gas. Again, as I said before, Enbridge data comes from factory-operated natural gas vehicles—60% highway, 40% city—whereas our industry is composed of 90% city, 10% highway and we have an awful lot of idling time, which does alter the fuel consumption and emissions. It also takes approximately one and a half litres of natural gas to go the same distance as a litre of gasoline.

Availability: At present, there are fewer than 25 natural gas refuelling stations in the entire GTA. This limits how far the taxi driver can go and it removes him from out-of-town runs. Some corporate accounts, such as one my company has with CP Rail, order taxi service with the specification of "no natural gas cars." Natural gas vehicles have a maximum range of about 170 kilometres per tank, whereas a gasoline vehicle ranges between 450 and 550 kilometres per tankful.

Product supplier: The province of Ontario has the province mapped out into areas for natural pipelines. There is only one pipeline provider allowed in each area. In the GTA, this is Consumers Gas. Though deregulation has occurred in the natural gas industry, allowing anyone to sell the product, it still must go through the pipelines owned by Consumers Gas, which charges a fee for delivering the product. Because natural gas vehicles make up a small percentage of natural gas sales, Enbridge Consumers Gas, which is the deregulated company of Consumers Gas, predominantly sells the product. This in every way violates a basic philosophy I think of any government but especially Toronto city hall, which is, never give a monopoly to any product or service involved in city business.

Aftermarket conversions: Out of the list of cars that are allowed to be operated as taxicabs in Toronto, less than 10% can be converted to natural gas. Therefore, even if the owner wished to convert to the product, he is extremely limited as to what model of car he can purchase. Drive Clean in-use emission testing showed that failure rates for 1980 to 1997 model year cars converted to natural gas are higher than the overall gasoline vehicle test failure rates. There is no reason to believe that the newer model cars would show any difference.

Other natural gas providers' opinions: I've talked to senior officials from Westcoast Energy, Union Gas and their deregulated company, Union Energy, which I guess you already know Duke Energy now owns, and EPCOR owns Union Energy now. These companies make up the other major players in the natural gas industry in the province of Ontario. My inquiry was, why aren't these

companies more involved in natural gas sales to vehicles in Ontario, seeing as Ontario has in excess of seven million vehicles? Their response was that they thought natural gas in the vehicle marketplace had a limited expected lifespan of between five to 10 years, and that it would eventually be replaced by hydrogen and electrical fuel sources, as they emit zero negative emissions, which is a plateau natural gas can never ever achieve.

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New vehicle technology: Clean Air Ontario stated that beginning with the 1998 model year, all new light-duty vehicles sold in Canada must meet an emissions standard to at least the tier 1 level. They must be equipped with the latest generation of on-board diagnostic systems, that's the OBD-II, for all fuel types. On certain model engines, some vehicle manufacturers have been able to meet the more stringent LEV, ULEV and SULEV standards using gasoline fuels. Their conclusions, in summary, show that the new 2002 vehicle emission standards are very strict, and all vehicles 1998 and newer are certified to tier 1 standards or better, regardless of fuel type. May I point out that after the 2002 Toronto taxicab mandatory spring inspection, all cabs in our city will be a 1998 model or newer. It is evident that the province of Ontario's current rules and guidelines for emissions are stern and for the new cars of the future will be even more rigorous, which should dispel any concerns the city of Toronto has regarding negative emissions.

Unjustifiable legislation: The taxicab industry is the only vehicle industry requiring a city licence that is involved in a natural gas initiative. There is no other city-operated vehicle that has been mandated to this program. If the emissions and fuel savings were anywhere near what Enbridge Consumers Gas portrays them to be, then every vehicle coming under the city of Toronto's umbrella would be involved. It is not the city's position to help a fuel source get their foot into any industry. They should find their own market level and let the taxi industry choose what fuel sources it wants.

Recommendations for the city of Toronto: The city of Toronto should grandfather out the two-year extension for vehicles using natural gas as a 100% fuel source. The data clearly shows that natural gas does not afford any special considerations as it does not meet the higher standards it has portrayed. By using this method, the city will have lived up to its obligation to any driver who bought into the natural gas vehicle extension program.

The city, strangely enough, has also given a two-year extension to any taxicab which is wheelchair accessible without dictating the fuel source. This clearly sets a dual-level standard within the industry. This is unfair. Every licensed taxicab, regardless of area of service, should be governed by the same rules and regulations.

It is further recommended that the city seriously look into increasing the lifespan of taxicabs from five to seven years, regardless of fuel source or area of service. This will address not only the public's concern for in-shape vehicles but will also give the taxi owner a reasonable opportunity to recover his capital expenditures, which, by

the way, was one of the major considerations involved in the two-year extension for natural gas and wheelchair accessible vehicles.

Recommendations for the province of Ontario: Formulate stringent guidelines for all cities and towns that want to adopt alternative fuel initiatives. These guidelines must include that all major stakeholders in the alternative fuel proposal are given an opportunity, whether pro or con, to address the issue. If there is a dispute, it should be settled by a provincial government committee so as to avoid the current confrontation we have between Toronto city council and the Toronto taxi industry.

Ensure that all aspects of the recommended fuel source are thoroughly studied and that the fuel source will be a positive step in enhancing the intended industry.

The province should assist private industry in establishing an infrastructure for any business desiring to enter the alternative fuel market. The present system of one pipeline provider per area in the natural gas industry sets a bad precedent as it shouldn't be the province's position to assist private industry in monopolizing the delivery or sale of any alternative fuel as it infracts federal guidelines for free enterprise.

The province needs to monitor the deregulated companies in the natural gas area. Even though anyone can sell natural gas, it is becoming apparent that only one company is selling natural gas in the vehicle market, because it makes up a low percentage of the overall natural gas sales.

Due to the present monopolization in the natural gas fuel area, the province needs to monitor the consumer's cost for this fuel.

Thank you.

**The Chair:** We have about two and a half minutes or so per caucus, starting with the government side.

**Mr O'Toole:** Thank you for a very interesting presentation. It seems like you've been on a one-man mission to confront the seeming public perception and I guess the industry's attempt to change the perception that natural gas is the way to go, for all the right reasons. You seem to be saying it's for all the wrong reasons.

Even the province itself gives a rebate for the conversion of cars to natural gas, and theoretically I support that, because I guess if you look at an ideal running condition comparison with gasoline and natural gas, they are supposed to be cleaner.

**Mr Manley:** It doesn't pan out in the data.

**Mr O'Toole:** Everything we're getting seems to suggest that they are cleaner, whether it's NO<sub>x</sub> or SO<sub>x</sub>. I'm not a scientist, but you seem to be the only person I've heard refuting it and I tend to be sympathetic to what you're saying and encourage some of the points you make. On two occasions under "Emissions," you accuse the industry of lying—well, you didn't use that word directly but it's pretty strong on page 3: "... claims of huge reductions in emissions were and are untrue."

**Mr Manley:** Check your Clean Air Ontario data that I have in front of you. Their charts clearly show that this isn't my data; this is your provincial government's data.

**Mr O'Toole:** I don't disagree with you. I'm more or less complimenting your courage to come and take on Union Gas and Enbridge and all the rest of them. Good luck to you. I hope you're successful.

**Mr Manley:** It is not just my opinion. Over 96% of my industry has not bought into the natural gas phenom, but it does give us a real problem with trying to recoup our dollars, because it costs about \$5,000 per year for car replacement and they're getting an unfair advantage, which is costing, as I said, over 96% of our industry an additional \$10,000 for new car replacement, which is absolutely not necessary.

**Mr O'Toole:** John has a little comment.

**Mr Hastings:** Sir, what do you recommend, then, given the disputatious nature of some of the data you've presented compared to the associations we have had before from natural gas? What do you see as the transitional fuel from gasoline? Are we always going to have a carbon-based economy, in your estimation—to a great extent, in my estimation of reading it, the hydrogen fuel industry is eight or 10 years away—unless there are some things done to move that along more quickly?

**Mr Manley:** Certainly, from some of the articles that I have read—like Shell Oil is now getting into a study of putting in hydrogen stations Canada-wide. That came out just a few months ago. So if the government does enhance these particular companies and assist them financially, we could probably move up the hydrogen and electrical vehicles. Yes, certainly the taxi industry wants to be part of that movement, but why should we bear the costs when the negative environmental thing that our industry causes is next to nothing? Nobody else has been mandated into this, and unless you mandate millions, 3,700 isn't going to make a great deal of difference, according to your experts. Therefore, we need to enhance people who are involved in the alternative fuels that emit zero emissions. We shouldn't be helping any alternative fuel sources that still emit negative emissions.

**Mrs Bountrogianni:** Thank you very much for your presentation. It is an eye-opener. I have two things. One for the committee: Mr Chair, could we have someone from the Ministry of the Environment comment on this discrepancy?

**The Chair:** For the Drive Clean program?

**Mrs Bountrogianni:** Yes.

**The Chair:** It's already requested; I just did it.

**Mrs Bountrogianni:** Wonderful, great, because this is certainly not what we've been told in the other presentations, so I appreciate this other point of view.

Just out of curiosity, why wasn't the usual process followed in Toronto?

**Mr Manley:** I've asked that question many times. I certainly have my comments, but I'll keep them to myself just for that. The point was, nobody else was allowed, and that's what made it very difficult. I feel it's one of the real mandates of this province to make sure that if cities are going to get into an alternative fuel program, everybody, pro or con, be given an opportunity. This was not afforded in this at all.



**Mrs Bountrogianni:** I would really be interested, from the scientific department of the ministry, in an explanation of the discrepancy—not a bureaucratic explanation but a real explanation.

**The Chair:** You're talking about the pollution level.

**Mrs Bountrogianni:** That's right. We have two sets of data.

**Mr Manley:** The data there is provided to me by Clean Air Ontario and it's the most recent. It is just less than a month old, and clearly shows that natural gas vehicles are failing at a higher rate than gasoline, and worst of all was propane.

**Mrs Bountrogianni:** There were a number of scientists, if I can remember, in that ministry as well as in the Ministry of Science and Technology. Perhaps we could get a full—

**The Chair:** Maybe you're asking that we should go further than the Drive Clean program in this inquiry?

**Mrs Bountrogianni:** I think we want a definitive explanation as to the discrepancy between this set of data and what we have been presented so far.

**The Chair:** Do you think we should be going to the Ministry of Energy, Science and Technology as well?

**Mrs Bountrogianni:** If we have to, Chair, I think we should.

**The Chair:** We'll leave that to our researchers and clerk to sort out whom. Certainly Drive Clean would be part of it, but it may extend further.

**Mrs Bountrogianni:** Yes.

**The Chair:** That's in order with the rest of the committee? OK.

**Mr Hastings:** Inherent in that, Mr Chairman, is how municipalities, unless it's under our amended legislation, allow any municipal government to mandate by bylaw what they should be doing for any given industry and transportation.

The legal basis here—I imagine you have challenged that?

**Mr Manley:** Yes, I have, because we already have a precedence in this area with the province, who is the senior government in this area. It's the contention of the taxi industry of Toronto that if our vehicles meet provincial standards in emissions, who is the city of Toronto to turn around and say, "No, we don't think they do. You need this fuel source." We think if they thought that strongly then why have they only picked one faction of their entire operation to make do this?

**The Chair:** Would the committee entertain possibly inviting someone from the city of Toronto who's involved? I think they do have some jurisdiction here, but there might be a better understanding for us.

**Mr Manley:** Councillor Denzil Minnan-Wong was the chair of that committee. And you'd probably want to get Mark Dimuantes, who actually did the study for licensing and standards, and the head of the taxi division, and there is Bruce Robertson.

**The Chair:** We'll have staff look into this further and follow it up. Any other questions from you, Dr Bountrogianni?

**Mrs Bountrogianni:** No. Thank you very much.

**The Chair:** Thanks very much for the presentation. It's much appreciated.

Just a few comments to the committee, maybe, before we adjourn at lunchtime here. You've seen what's laid out before you from now at least until Wednesday. Is everybody comfortable with the direction we're going?

**Mr O'Toole:** I do have a few—not criticism at all. I have some other personal travel needs. Is there a problem with changing? I might go from Buttonville as opposed to Toronto. That's more convenient for me, and cheaper, by the way, too. Not everybody wants to go Bearskin; I understand that. I have no problem with that. But it's about half price.

**The Chair:** You're talking about to Ottawa.

**Mr O'Toole:** Yes, to Ottawa. Coming back from Ottawa, I will be staying over an extra night, so I'll just make my own—

**Clerk of the Committee (Ms Tonia Grannum):** Yes, you can make those.

**Mr O'Toole:** I'll let you know. You can cancel these tickets as long as you're notified, right?

**Clerk of the Committee:** I think the tickets are printed, so they'll be yours and you can make the changes if you need to.

**Mr O'Toole:** Yes, but we can get a full refund on them.

**Clerk of the Committee:** Yes.

**Mr O'Toole:** I just don't want to cost the taxpayer any extra money.

**The Chair:** OK, if there's nothing further, the committee stands recessed until 2 o'clock. Dr Bountrogianni will be chairing this afternoon. For the sake of those presenting, please be on time so she can start at 2 o'clock and the presenters won't be embarrassed with the few numbers. I'm at some presentations in my riding. The committee is recessed until 2.

*The committee recessed from 1233 to 1401.*

**The Vice-Chair Mr O'Toole:**

**Mr O'Toole:** I'd like to seek the indulgence of the committee to allow a young student who is very interested in science and alternative energy, Sapphyre Gervais, to make a brief presentation when it's convenient for members of the committee this afternoon.

**The Vice-Chair:** I just spoke to Sapphyre. The trucking association is already here, so perhaps right after.

**Mr O'Toole:** Great.

**The Vice-Chair:** The presentation is five minutes. Is that fine with the committee?

**Mr O'Toole:** It's fine with me.

#### ONTARIO TRUCKING ASSOCIATION

**The Vice-Chair:** We welcome the Ontario Trucking Association, Mr Laskowski and Mr David Bradley.

**Mr David Bradley:** Thank you very much, Madam Chair and members of the committee. We too look forward to hearing Sapphyre's presentation afterwards. Some new ideas couldn't hurt. But we would like to

respond to some of the elements from your interim report. Indeed, most of the recommendations that we're making in our paper are consistent with, covered off by, or in some cases identical to what appeared in the interim report. We were quite pleased with it.

We'll talk about two major areas, one being energy efficiency in our industry and the other being emissions and alternative fuels.

First, with regard to efficiency, the fuel efficiency of the trucking industry in Canada has doubled in the last 20 years. In fact, trucking has made the major contribution in terms of fuel efficiency, as compared to any of the other freight modes. That's a reflection of a number of things, but predominantly it's in our interests as an industry to try to maximize our fuel efficiency as best as possible. When we've seen the kinds of taxes that historically had been heaped upon diesel fuel, and then, for example, the kinds of escalations in prices that we saw a couple of years ago, certainly where we can improve our efficiency, it makes good business sense.

But these efficiency gains have been made at the same time as our engines and our fuels have been consistently regulated, since the 1970s by the USEPA and by the federal government of Canada, to reduce emissions. It's really important to understand that it comes down to what problem are you trying to solve, because there is a trade-off between fuel efficiency and emissions. Our engines have pretty much maxed out in terms of the major strides they're able to take in terms of fuel efficiency, because the focus has been on reducing particulate matter, NO<sub>x</sub> and the like, and that will continue to be the case for the foreseeable future.

So in addition to driver training and all of those things, there are other things companies are undertaking to try to improve their fuel efficiency more, and I believe there may be a role for government to assist. One of those is tax incentives for speed controls. Speed is the enemy of fuel efficiency. Many, many companies in our industry are now investing in on-board computer technology, tachographs and the like, which allow them to monitor their fuel efficiency. These don't come cheaply, however. If we want to increase the penetration of that sort of equipment, those devices, into the industry, government may see fit to consider tax incentives and the like.

It's similar for anti-idling devices. There is no reason these days for a truck to idle, even though you do still see it. This can be controlled through various add-ons: heaters and cooling systems and the like. Again, they are expensive and not everyone has embraced that technology. There may be opportunity for incentive there.

But overall, and this isn't in our paper, one thing we desperately need is the electrification of truck stops, because a lot of this technology won't work unless you actually have something to plug it into. So first we need some truck stops and then we need them electrified.

One other area of fuel efficiency that the government of Ontario in particular might consider is to look at the experience of other jurisdictions with regard to special configurations that presently aren't permitted in this

province. There's one in particular, which is called the environmentally efficient motor vehicle—the E<sup>2</sup>MV. This configuration is used in Quebec, the western provinces and about half the US states, including the New York thruway, the Massachusetts Turnpike etc. This holds out some rather large economic gains for certain industries, particularly the auto and food industries in Ontario, and also in terms of the reduction of fuel consumption. This is something that we believe the government of Ontario should be looking at: piloting and determining whether in fact those vehicles would be suitable under certain conditions for use in Ontario.

With respect to alternative fuels, the definition of alternative fuels can be broader or narrower, I suppose, in terms of how you look at it. When we appeared before this committee last time, we spoke of the advent of ultra-low-sulphur diesel fuel. Through US EPA regulation, both diesel fuel for heavy trucks and heavy truck engines have been regulated for decades now, but by the 2006 fuel year and the 2007 model year, we are going to see the introduction of technologies that will eliminate 90% of the emissions of NO<sub>x</sub> and particulate matter, two of the most nasty pollutants in terms of human health. One has to precede the other because the engines and the particulate traps, NO<sub>x</sub> absorbers and those kinds of things that will be part of the new engine won't work without ultra-low-sulphur diesel. So by 2006, we will see the sulphur content of heavy truck diesel reduced from the current regulated maximum of 500 parts per million down to 15 parts per million.

By way of comparison, not all freight transportation modes are required to meet these standards. For example, railway locomotive diesel fuel and engines are not regulated in Canada. In fact, the sulphur content of locomotive diesel fuel can be up to 14 times what it is for truck diesel fuel.

The year 2006 is still quite a ways off, obviously. If you look at the experience of some other jurisdictions, particularly in Europe, where they were able to use the tax system to accelerate the penetration of ultra-low-sulphur diesel fuel into the marketplace, we're suggesting the committee might want to take a closer look at the UK experience, and if we can enhance that penetration and accelerate it, then we'll get the environmental benefits somewhat quicker.

#### 1410

I mentioned about the differential between truck diesel and off-road diesel, particularly locomotive diesel fuel. This is obviously somewhat of a competitive issue for us, but we also believe it's an environmental issue. As alluded to in the interim report, we certainly support a regime where the government of Canada, which has jurisdiction in this area—Transport Canada in particular—would regulate the emissions from locomotive engines and diesel fuel. But in the meantime in Ontario, we still have a situation where there's a gross disparity between the tax on rail diesel—and if you look in the background papers and the reports, some of it that's used in Ontario is basically home heating oil—versus the



ultra-low sulphur in trucking. There's a differential: 14.3 cents is the provincial fuel tax on truck diesel fuel, and 4.5 cents per litre on rail diesel. We believe that differential creates an incentive to remain with dirty diesel in the rail sector, and that's something that we think needs to be looked at.

In terms of how the industry is performing with regard to emissions, one of the measures here in Ontario that you could look to is the results of the Drive Clean program. What you'll find is that the heavy trucks are passing at least 95% of the time, and any of the engines built after 1991—the 1992 model year on—are passing at least 98% of the time. This is not a surprise to us. This is when the electronic engines came into being, and we're now in the era of the smokeless engine. If you're seeing a truck spewing black smoke, it's probably an old one, pre-1991, and/or, in the odd case, someone not maintaining their vehicle. It really raises some questions in our mind as to the effectiveness of that program. We have called upon the provincial government to increase the threshold, increase the standard, that if trucks pass that tougher standard they be allowed, just as cars are, to move to biannual testing, and to revisit the model years so that we're meeting the goal of trying to identify the gross emitters and going after them as opposed to simply creating business for some of the repair and dealer shops for doing the test.

There is, to our understanding, a cost-benefit study underway at MOE with regard to the heavy-duty program. We're not privy to the terms of reference or to where that study is at at the present time. It might be prudent for this committee to ask MOE to bring the results to the committee so that you could have a look at them and review them.

Again, in closing, it's important to note that there is a trade-off between significant new efficiency improvement versus reduction in emissions, and the focus has been in terms of reducing emissions, so there's a bit of a dichotomy between NO<sub>x</sub> and PM and greenhouse gases. We recognize that. We've recommended some things that will help the industry to embrace new technologies, new configurations that would allow us, at the same time as the emission performance of our fuel and engines is improving, to also improve our fuel efficiency.

With that, we'd welcome any questions that you might have. Thank you very much.

**The Vice-Chair:** Thank you very much. You've left about three minutes per caucus. We'll start with the NDP.

**Ms Churley:** Thank you. Welcome back again. Were you both here before?

**Mr David Bradley:** No. Unfortunately, I was somewhere else.

**Ms Churley:** You weren't here—

**Mr Steve Laskowski:** I was here.

**Ms Churley:** —but you and I had an exchange, if I recall correctly. It was you who said trucks were good for the environment.

**Mr Laskowski:** That's right.

**Ms Churley:** That's right; I remember now. We had a discussion about that.

I appreciate the fact that your industry is looking at ways to use cleaner fuel and all of those things, and I'm sure you're going to continue on that path.

I just wanted to come back to your comments about rail because obviously, in terms of your industry and the competitive side of that, that's an issue for you. There are more people calling for the federal government to bring back the rail business. You seem to be saying, and I believe we discussed this the last time as well, that you believe that your industry can in fact—I don't know if you said this. Did you say "is cleaner now" or "could be" if you proceed along the path you're on right now?

**Mr David Bradley:** You have to separate out service, economy, environment. Let's assume we're talking about enhancing the environment and separate that out. The reality of it is that the emissions from truck fuel and the emissions from truck engines have been progressively regulated by the United States Environmental Protection Agency since the mid-1970s, and since 1991 have become increasingly stringent. That has led to the introduction of the electronic engine, and will be leading in the 2007 model year to the new particulate traps, NO<sub>x</sub> absorbers and all of those sorts of things. So we're going to see a marked reduction in those particular emissions.

At the same time, in this country at least, railway locomotive diesel fuel and railway locomotive engine emissions are not regulated. What I think you heard last time was that, all other things being equal, if you were to somehow force a shift of freight—and there are a lot of reasons why this likely wouldn't happen anyway—from truck to rail, what you would in fact find is not a decrease in emissions but an increase in emissions of NO<sub>x</sub> and particulate matter. That was a finding of a study that was conducted for the Commission for Environmental Cooperation. That's a council comprised of the three NAFTA environment ministers. They looked at the impact on the environment of increasing trade, and they found, because of the stringent regulation on the trucking side and because truckers are able to turn over their fleets quicker, that you get a bigger environmental benefit and that you would lose that if you were to force a shift to rail.

Were you to level the playing field, as it were, and require railway locomotives to use ultra-low-sulphur diesel fuel and were you to require railway locomotive engines, as they are now beginning to do in the United States but not in Canada, to regulate the emissions from those vehicles, then other factors will come into play—whether they can provide the service, whether it's economic; society will make whatever choices that it makes—but in terms of the environment, it's really somewhat of a spurious argument to suggest that one mode is better than the other. The reality is there is not a whole lot of difference. The truck is getting increasingly better, whereas rail, as a report done for Environment Canada this past fall showed, is basically using home

heating oil in many instances here because there aren't any controls.

**The Vice-Chair:** Thank you. It's the government's turn now, please. Which member?

**Mr O'Toole:** I think we'll probably all share here. It's nice to see you, Mr Bradley. The trucking industry is important to a strong economy. I guess I would be asking, what would you recommend in terms of some sort of subsidy? It looks like if they go to this ultra-low-sulphur diesel it's going to cost more, ultimately. What are you looking at there?

**Mr David Bradley:** I'm not looking at a subsidy; I'm looking at a tax incentive that would increase the penetration of ultra low sulphur into the marketplace. Where there is a differential between one fuel and another, people are going to gravitate toward the cheaper fuel, so if you can use the tax system, as has been done in the past with propane and unleaded gasoline and everything else—an incentive was provided through the tax system so people would begin buying the ultra-low-sulphur diesel more quickly. Not only would that apply within the trucking industry, but across all sectors as well; if the tax system was used to provide an incentive for off-road users to move to ultra-low-sulphur diesel as well, so much the better. Our concern is that, so long as there is a significant market in Canada for dirty diesel fuel, we may not see the supply required of the ultra-low-sulphur diesel fuel, or we'll see it at an extremely high price.

1420

**Mr Jerry J. Ouellette (Oshawa):** Part of the problem with that is that I don't believe there should be a subsidy or tax incentive. It has to go to the manufacturer's level. What takes place currently in the production of diesel is that when heavy crude comes in and it has a high sulphur content, it's traded off so that the rail users and the homeowner users can utilize that heavy crude, and then the trucks are allowed to use the sweet crude, or the low-sulphur crude. If you give subsidies, the only thing that's going to happen is that it will cost more for the production. You're not encouraging the manufacturer to reduce their costs because everybody will try to gravitate to that, and then the rail diesel will still have the problems of the heavy crude. So when coming forward with a subsidy, it should go to the manufacturer, if anybody. Trying to go to the end user is not as much of an incentive as it is to go to the manufacturer.

**Mr David Bradley:** I might disagree with you on that. If the end user has a choice, ultra-low-sulphur diesel fuel or dirty diesel fuel, and the dirty diesel's cheaper, that's what they will purchase. In the marketplace, ultimately it's the end consumer who drives the market, not the manufacturer.

It's true, there are issues and there are cost implications. Fuel coming through the pipeline: how do you separate out the ultra-low-sulphur diesel from the dirty diesel? How do you do that?

**Mr Ouellette:** It's in the refining process. When they do a purchase of goods, they essentially know whether it's heavy or sweet crude at the time. So it's the manu-

facturer who should be receiving the incentive to bring all uses of diesel down, whether it's in the diesel or whether it's in the trucks or whether it's in the home heating fuel. Right now, trucks are receiving the benefit from it, because it's the homeowner and the diesel user who have to eat up the heavy crude so the trucks can use the low-sulphur diesel.

**Mr David Bradley:** Or one might say that it's the homeowner and the railways who are polluting the environment, and isn't that what we're talking about?

**Mr Ouellette:** That's what I just said, that the way to go about it is at the manufacturer's level.

**Mr David Bradley:** I think there are different ways of creating demand. I would rather create the demand in the marketplace than at the manufacturer's level, but I accept your point. We'll just agree to disagree.

**The Vice-Chair:** Interesting interchange. Thank you very much for your presentation.

#### SAPPHYRE GERVAIS

**The Vice-Chair:** Those of you who were here earlier know there's been a slight change in the agenda. We will have a five-minute presentation from a student, Sapphyre Gervais.

**Miss Sapphyre Gervais:** My name is Sapphyre Gervais. I am a student currently at Memorial School in grade 6. Two years ago, I did a presentation in my classroom during science on a way to derive hydrogen from water. It was environmentally friendly.

I do not have a business to represent or anything and—

**The Vice-Chair:** You're doing great. I like that last line. Keep going.

**Miss Gervais:** I do not have a business to promote or an engine to sell. I only have an idea that I think should be developed further.

The world needs an alternative to fossil fuels. That alternative must be able to replace fossil fuels as the primary energy source for transportation.

Your report calls for a public definition of green energy. What is meant by green energy? I have a simple answer: the word ACE. The A stands for abundant. If green energy is to replace fossil fuels as a primary global energy source, there must be a large, perpetual, renewable supply. The C stands for clean. Green energy must produce no or almost no pollution during either the conception process or the production process. E is for efficient. If green energy is to replace fossil fuels as a primary global energy source, it must be able to generate high levels of power, be convenient to store and transport and be available at a low cost to consumers.

Hydrogen is the perfect green energy source but the production of hydrogen may have some environmentally harmful results. My idea is to produce hydrogen cleanly, using (1) ocean water as the unlimited renewable source—I'm using the ocean because you're not using up the fresh water resources and there's lots of ocean water; (2) the tides to collect the water and dispose of waste;



and (3) solar energy to distill the water and produce hydrogen through electrolysis.

I have a picture. First, you've got to understand that I made this in grade 4 with a not-so-great printer, OK? This is the sun and this is a photovoltaic cell. It shines on there and it makes electricity, which goes to the electric diodes, and when it zaps the water, it separates the hydrogen and the oxygen. The hydrogen you store and the oxygen you can sell to hospitals or you can let out into the air. This is a little picture in there of the tide coming in.

Glen Shevlin of Renoscapes talked about hydrogen production this morning. I talked to him afterwards about my plan and he said that it was completely feasible but expensive. But everything in this plan consists of large upfront capital costs. Once the infrastructure is built, the hydrogen will cost almost nothing to produce.

I realize that Ontario doesn't have much oceanfront property. Nevertheless, if you are looking for a large-scale solution to society's energy needs, we need to look at large-scale investment and the commitment of all governments to contribute where they can.

I would like to thank the committee for allowing me to share my ideas today and I hope this idea of hydrogen as an alternative fuel source goes further.

**The Vice-Chair:** Thank you, Sapphyre and Mr Gervais, and thank you, Mr O'Toole, for bringing Sapphyre in. I hope we can have a copy of your drawing. It looks very good even for grade 4. Wonderful.

**Mr O'Toole:** Do we have time for questions?

**The Vice-Chair:** If you'd like. We are a little behind, but that's fine.

**Mr Hastings:** I have a question. Sapphyre, you talk about hydrogen being the way of the future, and I think it probably is in the next 10 or 15 years. Since Ontario, as you say, doesn't have much oceanfront, what kind of solution do you think we'd need to undertake to bring ocean water from the Maritimes to Ontario? Would we use tankers or do we create a pipeline right at Sable Island and bring the water that way?

**Miss Gervais:** I'm thinking that maybe Canada in total will start thinking about hydrogen.

**Mr Hastings:** That would be nice.

**Miss Gervais:** Maybe you can get a lot of people thinking about it and just have people go to the ocean and do that.

**Mr O'Toole:** I have a question, sort of a technical question. What engineering program are you thinking of going into?

**Miss Gervais:** I don't know.

**Mr O'Toole:** Good luck in your future.

**Ms Churley:** I've watched you here all morning and wondered what your interest was. I asked you if you were going to make a presentation, and I'm so pleased you did. I must say it's really nice to see a girl, because mostly we have men come before this committee. Every now and then we have a woman, but it's really nice to see a girl involved in this, and I hope you continue to pursue your studies. That was an excellent presentation.

Just so you know, I come from Newfoundland originally. Instead of building a pipeline from there, people can just go to the ocean and produce it. I think that's what you had in mind, instead of trying to bring the ocean to places like Toronto and Ontario; is that correct? Yes.

That was great. Thank you very much.

1430

## CONSERVATION COUNCIL OF ONTARIO

**The Vice-Chair:** Our next presenter is from the Conservation Council of Ontario, Chris Winter. Welcome, Mr Winter.

**Ms Churley:** Another guy.

**Mr Chris Winter:** Yes, another guy. Sorry, Marilyn. I'm not about to change.

**The Vice-Chair:** As you probably know, you have 20 minutes for your presentation.

**Mr Winter:** Thank you very much to the committee members for inviting me here. My name is Chris Winter and I'm the executive director for the Conservation Council of Ontario, which is an umbrella group for a multi-stakeholder, multi-sector organization, an umbrella group of organizations all interested in promoting conservation and environmental protection.

I do want to note right off the top how interesting it is that both the Ontario Trucking Association and Sapphyre were talking about the high costs of green energy and the barriers they present. It also twiggled in my mind—thank you very much, Sapphyre—that one of my first projects in school—granted, it was in university, not in high school or anywhere—was looking at alternative fuel for farms and ethanol as a source for farm energy.

**Mr Hastings:** That was the old curriculum.

**Mr Winter:** That was the old, yes—way old.

I looked at it, and everyone said it costs too much to produce, it costs more than \$30 a barrel and it won't be effective until oil hits \$30 a barrel. I thought, you could bring the cost down. This is Canada. Why not just freeze your basic beer mash and pull the alcohol off it, and then you've got only a small amount that you need to distill in high grade. That was my innovative solution as a student, which, of course, went nowhere.

But what I have done is looked at your interim report, and I want to start by thanking you very much for that interim report. It was an excellent report. I found it very informative, provocative. You raise some very good questions and in going through the questions, at least the first 30, which I did, on the general policy framework, I found them very useful for structuring my response and my presentation on a green energy strategy.

I'm presenting on a green energy strategy because that is my background now for 20 years with the Conservation Council of Ontario, working on conservation strategies. I also manage the GreenOntario.org Web site, where we look at Ontario's existing environmental programs and commitments within a strategic context. So this presentation will probably be up on that Web site in the next day, if anybody wants to find it.

You will hear a lot of presentations, I'm sure, and submissions on the details of how to do a green energy strategy and all the different nuances of it. I've looked at the general principles and the structure for a green energy strategy, because what your paper started out with was a question that said, "Should we have a green energy strategy?" The answer, I hope, is a resounding, "Yes, of course we should." But the real question is, what should that strategy look like? How detailed, how focused does it have to be? What are the goals of that strategy?

Your questions that follow kind of skirt around different pieces of it and don't really bring it together into a cohesive, strategic framework. So that's what I've done for you, and you'll find on the first couple of pages of my presentation here a strategic framework for a green energy strategy.

The first thing is the title: call it A Green Energy Strategy. "Green energy" is a pretty commonly accepted term. In fact, it is being formally defined, so it is not just a term that the public understands, but it is becoming one that, through programs like EcoLogo, is beginning to get that formal definition that industry and government can buy into. Include in that term of "green energy" energy conservation. We agree with Pollution Probe's suggestion that energy conservation is perhaps the cheapest and first form of green energy.

Second, the coordinating bodies for a green energy strategy: you've asked about the role the government should play, how it should be coordinated within government. I think you should also look at the external coordination.

So for the Ontario government, we recommend that the Ministry of Energy, Science and Technology be the lead body, or, if you prefer, an interministerial task force. You definitely should look at how to integrate the goals of the green energy strategy into the business plans of all affected ministries, and into other significant initiatives.

For outside government, we recommend a green energy task force. You need to bring together the key stakeholders in an ongoing process, where these stakeholders come to the table with a commitment to leadership in their sector and a commitment to continuous improvement in their activities. We all need to be moving forward.

What are the goals of a green energy strategy? We have three goals that we recommend: first, maximize energy conservation and the generating capacity for green energy in Ontario; second, create viable conservation and green energy industries in Ontario; and third, provide consumers with access to affordable conservation measures and green power options. So you need to look at the economics, the viability of the green industry and also the consumer end, the ability to afford conservation measures and green power—eliminate that barrier, that gap of a premium.

You've asked about targets, and I've not suggested specific targets, but I've alluded to some areas and suggested some that others have recommended. First, there should be an overall target for the renewable sector.

In Ontario's environmental agenda, I think they recommended a 5% start and a 1% increment per year. Their date on that, I think, was the year 2000, so we've passed that already. You need to adjust that for the initial 5%.

Do we need specific targets for individual sources? Yes, that would be great. In particular, I'd like to see something for rooftop solar. For some of the smaller, individual kinds of industries that might get overlooked, we need to look at things like in the United States where they have an excellent program called the Million Solar Roofs program, where their goal is to get a million solar installations on rooftops across the US by, I think, 2010 or 2011. We need to look at something similar to that with similar targets—not quite a million, but whatever fits for Ontario.

We need targets for energy conservation as well so that we're actively pushing forward on conservation measures. You need to relate the green energy strategy to emission reduction targets. So where we have those targets, like the Kyoto Protocol or the Anti-Smog Action Plan, tie them in.

Finally, we need performance measures for conservation and green energy built into ministry business plans. There's very little in the ministry business plans at the moment with respect to green energy, even within the Ministry of Energy, Science and Technology; there's certainly nothing within the science and technology division on green energy.

Activities: I've divided this into regulatory activities, support programs, economic instruments, voluntary programs, and outreach and education. I will skim over them. They were largely drawn from the recommendations that you have included in your interim paper, so it's everything from emission caps, tradable credits, renewable portfolio standards, green power definition and labelling, green tape reduction—I think that's one I added in; we need to look at something equivalent to red tape reduction for green energy—and delegating regulatory powers to the Ontario Energy Board. The other one I'm adding in there is Planning Act requirements for energy-efficient urban design, linking a green energy program into the Smart Growth initiative.

Support programs—this is government with partners: research development fund, pilot technology, things that you mention in your paper. Homeowner outreach and support is also useful.

#### 1440

Economic instruments: now we come to the big one. Economic instruments are vital if we're going to achieve the goals of a green energy program. Right now, with voluntary measures, we are depending on consumers to step forward and pay the differential in cost. I don't know how many of you are intending to buy green energy at a premium. I know I probably will; I'm assuming Marilyn will. My fear is that there are very few fools like us who will step up and buy the green energy at a premium. Even where people say at arm's length in opinion polls, "Yes, I will buy green energy at a premium," you're probably not going to see that when push comes to shove. There's



a difference between arm's-length and point-of-sale decisions. So we cannot rely on voluntary measures to achieve our goals for green energy; we need to have strong economic instruments that are going to eliminate the gap, the premium between green energy and conventional polluting energy. You can look at it on an ethical basis, on a principle basis: green energy should not cost more than polluting energy. But on an economic basis, you're not going to have a viable energy industry in the long term and you're not going to have consumers paying for green energy unless we can eliminate that gap.

You mention some economic instruments in there. We've added one that we think is vital. We can't tinker around the edges; we need to have something in there that is going to put the cost of green energy on conventional energy. Back last April we recommended, in our response to the Managing the Environment report, that as a test case for economic instruments, the government should take part of the 0.7 cent per kilowatt-hour surcharge on electricity to pay for Hydro's stranded debt and apply some of that to a green energy fund. This is consistent with the recommendations that Macdonald made, that after the debt was paid down, part of that fund could be used and transferred for things like environmental projects. We think that should be stepped up; you should start doing it now. By my calculations, if we took 0.1 cents per kilowatt-hour and applied that as a surcharge or took that part of the surcharge on electricity, we would generate \$150 million a year that would be applied to reducing the cost to consumers for green energy. That's the scale we need to be looking at.

Finally, the other thing I want to talk about is the carrot or stick approach, and I'll close with that. There's a lot of talk about the role of emission limits and emissions trading and how that fits into a green energy strategy. There is definitely a very important role for emission credits and trading of those credits, but I fear that should not be the only driving force for a green energy strategy. It's the stick approach. It's forcing utilities to play a part in the game by saying, "You can use green energy to achieve your emission caps." What misses in that is the small energy options: the individual homeowners, the local energy co-operatives, a lot of the very innovate and local things that could be developed through positive incentives. So I would argue very strongly that we need to look both at the carrot and the stick. I like the role that emission caps can play in forcing utilities to play into the green energy game, but I also want to see a lot of the good incentives and positive things like a green energy fund would do to create the stimulus for all kinds of green energy activities.

I'll close with that. I do want to say that it's extremely important come May, when we announce all the deregulation and shift gears, that you have in place the start of something that is going to be significant and long-lasting. To do that, it's not just announcing a couple of programs. We need to announce a commitment to eliminating the cost differential for green power, to announce the formation of a green energy task force and a long-term green

energy strategy, and to announce the creation of a green energy fund that will be a significant economic instrument in support of green energy.

I thank you for your time.

**The Vice-Chair:** Thank you very much for your presentation. We'll start with the NDP.

**Ms Churley:** How much time do we have?

**The Vice-Chair:** About two minutes per caucus.

**Mr Winter:** I rambled again.

**Ms Churley:** I appreciate your presentation today. It's clear that you have read the report carefully. It's nice to see a response to the actual report, and I think we have Jerry Richmond to thank for putting that report in the form that it was—

**Mr Winter:** I'm sorry I only got through the first 30 questions and not the rest of them.

**Ms Churley:** Yes. It indeed was and is a good report, and this is the kind of thing that we need to help us now develop a framework around our final recommendations.

I like your idea of an Ontario equivalent, I think you're saying, to the Toronto atmospheric fund.

**Mr Winter:** Yes.

**Ms Churley:** That, as you may know but people here might not, grew out of, when I was on city council, I believe an energy conservation office, an energy office. I even forget what it was called when I was there, 1988-89. The atmospheric fund grew out of that office. I think it's a very good suggestion, to put something like that in place. The fund, as it now stands, was an endowment from a sale of some property. Can you describe the way it works so we have some idea of what you're proposing?

**Mr Winter:** That one was a windfall, I guess, in the sale of—

**Ms Churley:** Langstaff, was it?

**Mr Winter:** —Don Jail lands or something.

**Ms Churley:** I don't know; Langstaff, I think. But anyway—

**Mr Winter:** Yes, some lands were sold, resulting in, I believe, about \$25 million. That \$25 million, rather than being sucked into general revenue, was put into an arm's-length fund that would fund long-term-interest loans or low-interest loans.

**Ms Churley:** So that's how the money is used now.

**Mr Winter:** Yes.

**Ms Churley:** That's what I'm trying to get at.

**Mr Winter:** It's not a granting program as much as it is loans for projects that would not otherwise be funded. So I think the city was able to use it to do a lot of its street light retrofitting and improve efficiency in its street lights.

**Ms Churley:** Right. So how would you see such a fund being operated, if there were such a provincial fund? Going to what sorts of projects? Some of the energy efficiency stuff, for instance?

**Mr Winter:** I would see definitely some of the energy efficiency stuff, but I would see also an opportunity to link in with the green communities initiative, which is still going great guns and doing excellent work.

**Ms Churley:** That's something else the NDP started, for the record.

**Mr Winter:** I knew you'd pick up on that. I happen to be on the board of the Toronto GreenSaver and I am extremely impressed with the job they do in reaching out to homeowners and providing a very much needed service to people, saying, "Here's what you can do to make your homes more efficient."

**Ms Churley:** If I'm going to be buying that more expensive green power, I'm going to need lots of energy efficiency and conservation programs in place to help me conserve energy so I can afford to pay those higher premiums for green power, because the two go together.

**Mr Winter:** The payback on a lot of these things is 10 to 20 years, which is a long time and a major investment to expect people to put in. So what we need to do and what this fund would do is cut down that payback time and make it significantly more viable for individuals to say, "Yes, I can make that investment. I can put in energy-efficient windows."

**The Vice-Chair:** Thank you. It's Mr Hastings's turn from the government side.

**Mr Hastings:** Thank you for coming in. I think it's a pretty good report in terms of the scope of things you've tried to tackle. I'm certainly very happy to see and I agree with you completely on point 26, page 12: no more pilot projects. We've had pilot projects going on at whatever levels for eons in time. Get on with the job.

Could you elucidate a little more on your thinking as to how Ontario can become a leader in the renewables field, given that most countries—Australia, Japan, the European Union, the US—are light-years ahead of us, really quite far ahead? How can we catch up?

**Mr Winter:** That's a good point, because when I was saying Ontario could become a leader, I was thinking about a leader in Canada.

**Mr Hastings:** How about a leader in the world?

**Mr Winter:** That might take a little more time, because as you say, yes, we are behind the ball. A lot of other countries, especially Europeans, are investing much more in solar and wind technology—

**Mr Hastings:** Photovoltaics.

**Mr Winter:**—and we need to catch up with that. We need to develop our homegrown technology. But I think again, to get back to the area of energy conservation and the green communities outreach, that's one area where we have developed a very innovative approach, a very cost-effective approach, and that's one where we could be a leader.

**Mr Hastings:** But we don't have the company infrastructures to deliver in these renewables, do we?

**Mr Winter:** No.

**Mr Hastings:** We have some companies, yes.

**Mr Winter:** And a lot of that is done through the non-government sector, non-government organizations in partnership with utilities and so on.

**Mr Hastings:** Any thinking on how we could encourage that?

**Mr Winter:** Again, the simple way to do it is to reduce the price differential for conservation and for green energy. If you eliminate it, they will come. That's one thing where we can take a leadership role. If we found an innovative way to add a small surcharge on conventional sources, which will be a major impact on the renewables and the conservation side, we would be a leader in that, because I don't think anyone else is really that far ahead on the economic instruments.

**The Vice-Chair:** Thank you very much, Mr Winter, for your excellent presentation.

1450

#### ADM AGRI-INDUSTRIES LTD

**The Vice-Chair:** I believe our next scheduled presenter, Mr Kartofel, is not here yet. Mr Downing of ADM Agri-Industries, if you're ready you may proceed. Would you like the lights turned off or dimmed? I have one name here and I see two gentlemen: Mr Gerry Downing, and the other gentleman?

**Mr Gerald Downing:** Gerald Downing, and this is—

**Mr Robert Barlow Cash:** Robert Barlow Cash. These computer presentations make doing these things so much faster.

Maybe I'll just start by means of introduction. I'm the Canadian environmental manager for ADM Agri-Industries. My colleague is Gerald Downing, who is the biofuels manager for Archer Daniels Midland Co. Gerald is from our head office in Decatur, Illinois. It's a pleasure for both of us to be before the committee today, and for me, I guess, a repeat. I had the pleasure of presenting to you before the first report.

I thought I would start with just the briefest of introduction to ADM Agri-Industries in Canada to help you understand the relevance of our presentation for renewable fuels. That means we're almost queued up on the slide for that.

ADM Agri-Industries is Canada's largest flour miller, with nine flour mills across the country, two oilseed processing plants, two feed and premix plants, a number of country elevators, two chocolate and cocoa processing facilities, a starch plant and four edible bean processing plants as well.

We also have a 19% interest in United Grain Growers and Agricore, which recently merged to form Agricore United. ADM has over 1,000 employees in Canada, with \$1.5 billion in revenue here, \$1 billion of which is right here in Ontario.

A quick look at the map of Canada will show you our locations are indeed across Canada. Here in Ontario we have four flour mills, one cocoa processing plant, one chocolate plant, a feed premix mill, one oilseed plant, a public grain terminal and four country elevators. So you can see indeed ADM Agri-Industries is a Canadian company and well-invested here in Ontario.

The next slide also shows our involvement with United Grain Growers. The slide is a little bit behind the times; since the last time I presented to you, Agricore and



United Grain Growers merged. On the slide here are just the United Grain Growers sites and we have not yet added in the Agricore sites, never mind the country elevators and grain terminals that we have here in Ontario.

This all by means of helping you understand that one of the reasons for ADM support for renewable fuels in Canada is indeed our presence here and that renewable fuels is an integral part of our portfolio of businesses.

With that, I'd like to turn it over to Gerry to continue with our presentation.

**Mr Downing:** Robert has spoken a little bit about why we are here and ADM's current interest in Canada. Now I will cover four areas and then summarize and close. The first area I'd like to cover is ADM's involvement in renewable fuels in Europe, Germany and also in the US. I want to do this just to give some perspective as far as what's going on with ADM in Europe and Germany as well as the United States in renewable fuels. The second thing I'd like to cover is biodiesel legislation in the US and Europe and projected impact on demand. The third thing is current biodiesel efforts in Canada. Finally, I'll discuss biodiesel as a viable alternative fuel and talk a little bit about the field experiences in Europe, Germany specifically, as well as the US.

First of all, ADM's involvement in renewable fuels: biodiesel producer in Germany, ethanol producer in the US, and we are an associate member of the National Biodiesel Board in the US.

Looking at the biodiesel sales in Germany, if you look at the bar chart there, it's almost parabolic growth. It has been very impressive, to say the least. I'd like to make two points about this parabolic growth. Tax incentives have played a significant role as well as OEM support. OEM support is essentially the foundation that gave the industry and gave the users of biodiesel a level of comfort with this fuel.

What I'd like to point out here is that the 2002 projection is 750,000 metric tonnes of biodiesel. In 1993, it was 10,000 metric tonnes. So there has been remarkable growth. ADM is a large presence in Germany. In 2002, we will have a production capability of 250,000 metric tonnes, which is one third of the total projected biodiesel sales in Germany.

Now over to renewable fuels in the United States. ADM has been very involved in ethanol. This is more of a ramp-type growth, but nonetheless it's very impressive. Our production capability today approaches one billion gallons; it's around 950 million gallons of ethanol. We are anticipating the MTBE being replaced, first of all in California and then possibly in Illinois and throughout the Midwest. If this carries through to the nation, we're looking at an additional 2.1 billion gallons in the total US ethanol market. Right now it's about a two-billion-gallon market. I mentioned before that ADM is close to a billion gallons, so we're close to 50% of the market share, and then of course the market could double with the phase-out of this MTBE nationally.

## 1500

Back to biodiesel, United States legislation: we have some current legislation. On your left there is the EPACT, ECRA, and this is essentially a way to get federal government fleets purchasing and using biodiesel. The second piece of legislation is down there near the bottom in the left-hand column, the CCC credits. That's a USDA program and that's designed to encourage the increased use of agricultural products in the country.

On the right is proposed legislation. Number one is an excise tax reduction. Essentially what this is: on a B2 blend that would be 2% biodiesel and 98% petroleum fuel. That amounts to three cents per gallon on a 2% blend. Then we're also looking at proposed renewable fuels mandate legislation, which has a number of scenarios. You can see here the effect it would have on demand. There's Senator Daschle's bill and then there's also the Hagel-Johnson bill. If you look at that, year 2002 to 2010, you can think of this as year one up to year nine. As you can see, that's a very impressive growth rate there, as well, the USDA high-demand scenario, and the FAPRII, which is an independent study that was carried out by the USDA.

The total diesel fuel demand in the US in 2001 was approaching 35 billion gallons. It's projected by 2010 to be around 43 billion gallons. So if you look at the projected demands, close to 1% of renewable fuels will be biodiesel.

What are the ag economics? They're very positive. Again this is a study that was commissioned by the USDA. What they projected is, with this type of demand that would be generated under the high-demand scenario, soybean oil prices would rise 22% per year, soybean oil and meal production would rise 2% per year above baseline levels, meal prices would decline roughly 6% below baseline levels, soybean prices would rise 3% per year over the period, and employment would increase by roughly 13,000 jobs. Of course, the value of exports would rise, and biodiesel would displace US\$1.2 billion in oil imports. The real economic impact is here on net farm income. It would rise, on average, \$300 million per year.

So just looking at that, we have about US\$1 billion over this nine-year period going into the US treasury just in terms of increased taxes due to the increased income of the farmers. But the program itself was projected to cost about \$2.1 billion over the life, over the nine-year period. So we have a net cost of \$1 billion to the treasury. It has been looked at to pay for this, the LDP payments, taking LDP payments that would be significantly lower, and the USDA-CCC program to basically reimburse the Highway Trust Fund, which of course could lose some of the tax revenue with an excise tax exemption.

Just to give you a backdrop here, what the credits look like in Europe and how this demand has been stimulated: in France, it works out to about US\$1.19 per gallon; in Germany, US\$1.11 per gallon. This is on a neat basis. In Germany essentially that's a B100 blend. That is, the vehicles in Germany utilize 100% biodiesel; there's no

petroleum. That's essentially going around a mineral oil tax, and as a result there's no tax. That US\$1.11 per gallon is essentially a complete exemption, because there's no petroleum, or no mineral, in the fuel. Of course, Italy is free of tax on the B100 also. Those are the three major players in Europe.

The economic community is proposing a tax incentive. The tax would be on biodiesel, a maximum of 20% of the normal tax for each country. That's a tax incentive, and there's also a proposal for a mandate. As you can see, it sets minimum percentages of biofuels for member states: in 2005, 2%; in 2010, 5.75% and so on.

This is the projected resultant demand. In Germany, if you recall the bar chart, there has been a huge increase in demand here in the last five to six years. As you can see here, it's basically a straight-line ramp-up; 2003 is when it really kicks in for the US and of course Europe.

I wanted to talk a little bit about the current biodiesel efforts in Canada by various grower and processor groups. My understanding is that in the short term they are looking for tax parity with ethanol, and in the longer term a renewable fuel mandate as well as additional tax incentives for biodiesel. This could be on a blended-litre basis. Throwing out a number, approximately one cent per litre has been estimated as something required to bridge that gap between what the price of petroleum fuel is and what the price of neat biodiesel is. So that would make up the gap if it's on a blended basis.

Over the next few slides, I wanted to discuss a little bit about why biodiesel was a viable alternative. I know that issues might have been raised earlier that there are some concerns about the performance of biodiesel. Experience tells a lot. As we can see in Europe, it has gone a long way; also in the rest of the world. In Brazil, from 1978 to 1988 there was some field testing done; in Malaysia, from 1987 to 1990. Germany of course got started in 1991 and 1992, and then did some Porsche work in 1992 and 1993, getting the OEMs involved. Then of course in 1991 ADM started their own production in Leer, Germany. VW approval was a very important event that happened in 1996. As we can see, the number of cars today totals 10 million to 15 million, so there's a lot of experience out in the field with this fuel.

The other leg of this is OEM support. We have worldwide support, with a worldwide fuel charter. It is comprised of OEM associations such as the Engine Manufacturers Association of the US; JAMA, which is the Japanese engine manufacturers; AECA, which is the European engine manufacturers; and the Alliance of Automobile Manufacturers. So there is OEM support behind this.

I'd also like to talk about the lubricity aspects of the fuel. A number of studies have been done; one in Germany. As you can see, there is the HFRR test, which is short for "high-frequency reciprocating rig." It basically is measuring where. As you can see, the limit is at around 450 microns, and the 2% blend would put it down below 300 microns in terms of the depth of scarring. So biodiesel at a 2% blend is a very good lubricity additive.

As you can see, low-sulphur diesel, which would be at the 0% range, is above the limit of 450 microns.

#### 1510

Biodiesel emissions: essentially no sulphur, nitrogen or aromatic compounds. It contains 11% oxygen by weight. NO<sub>x</sub> is slightly higher or lower. There are ways to lower the NO<sub>x</sub> either via additives or the three-degree retardation of the combustion.

The other thing is global warming. The life cycle of CO<sub>2</sub> if you look at it, 80% of the life cycle will decrease. Significant reductions in the risk of cancer and birth defects; these are some of the health effects of the fuel.

In summary, I'd like to tell you a little bit of what I just spoke about. The biodiesel industry needs significant legislation for long-term commercial viability. This has been shown in Europe as well as the US. Biodiesel is a viable alternative fuel with major worldwide OEM support. Biodiesel has lower emissions. Its lower CO<sub>2</sub> emissions are good for reducing the risk of global warming. It also is a good lubricity additive. Finally, it's a homegrown renewable resource.

That concludes my presentation. Thank you for your attention.

**The Vice-Chair:** Thank you very much for your presentation. We have time for a very quick question and answer from each caucus.

**Mr Gilchrist:** I've got a couple but I will keep the questions really quick. I appreciate the international perspective, but let's get close to home here. Production capacity limitations here in Canada: what are they now? Are there any regional considerations in terms of where the ethanol and biodiesel are produced and where they'll be consumed? Range of the incentives required here in Canada: are you suggesting the models adopted in the States and the EC are acceptable here? The time frame that has been proposed by the European Community to implement their standards: is that appropriate? And what would be the practical impediments to a rapid introduction of those standards here in Ontario? Pick and choose out of all those.

**Mr Downing:** The first question again? Let's take them one by one.

**Mr Gilchrist:** The production capacity: you talk about, if MTBE is eliminated, the need to double in the States right there. It's my understanding that we already are importing ethanol into Ontario. What are the practical considerations, what are the dollars-and-cents, import-export implications for our economy if we were to mandate tomorrow European Community-type standards?

**Mr Downing:** I'm not really familiar with the production capacity of ethanol in this country at this time. I do know, as far as your diesel fuel uses and gasoline uses, that's another matter. Currently we think we can grow another 2.1 billion gallons in the US. As far as, will there be a surplus that could be imported into Canada, or exported into Canada, that's a question I cannot answer at this point.



**Mr Gilchrist:** You're confident that the time frames the European Community has proposed are reasonable without unduly inflating the prices?

**Mr Downing:** That's going to be up to them, as far as their own research and what they move forward with on that, since they're much more familiar with the European theatre. Essentially, my goal here was to give you a backdrop of what has been done in other areas, which you already might have known about, but I just wanted to put some things in perspective and see what you could do as far as your own programs.

**Mr Gilchrist:** OK. Thank you.

**The Vice-Chair:** Welcome to Mr Smitherman, who says he is passing on a question.

**Mr George Smitherman (Toronto Centre-Rosedale):** No questions, Madam Chair.

**The Vice-Chair:** It's the turn of the NDP, then.

**Ms Churley:** Do I get his time too?

**The Vice-Chair:** No, you don't, because we're already over time.

**Ms Churley:** He took it; that's right.

This is a very comprehensive report on what other jurisdictions are doing and that's good background for us to have. When I look at this, I would think that our federal government as well would have to be involved in this kind of incentive approach. There are certain things that we in Ontario need to do but it's also—and this is the kind of thing we're looking at, these kinds of incentives. This is some good background in terms of what other jurisdictions are doing, so thank you for that. But I assume you would agree that this is the kind of area where we'd need to look at what the federal government is doing as well, or not?

**Mr Barlow Cash:** Indeed it needs to be looked at in connection with the federal government. There are things Ontario can do on its own in terms of a mandate. We know that the tax portfolio is not solely Ontario's, but certainly there are things that Ontario can do toward a mandate.

**Ms Churley:** I guess we don't have time for me to ask you to make that distinction now.

**Mr Barlow Cash:** There are two main thrusts between tax incentives, and those can come in a variety of fashions. I think probably what the community is looking for is parity with ethanol for biodiesel, but on the mandate side of things is to require a certain amount or a certain percentage of renewable fuels in fuel as a whole. That's certainly something that Ontario could move forward on on its own.

**Ms Churley:** That's helpful. Thank you.

**The Vice-Chair:** Thank you very much. Time is always our biggest challenge. An excellent presentation. Thank you for coming.

#### STEPHEN KARTOFEL

**The Vice-Chair:** I understand Mr Kartofel is here now. Make your way to the front as these gentlemen are wrapping up their technologies. As yours is an individual

presentation, you have 10 minutes, including any questions.

**Mr Stephen Kartofel:** Very good. My name is Stephen Kartofel. I'm from Niagara Falls, the crossroads of the world of the common man; not the jetsetters, just the common man. I don't know where the jetsetters usually go. They fly off to Rome or Rio or whatever and look for something, whatever they're looking for, but the common man comes to Niagara Falls.

I've lived there for 30 years and I've been involved in the tourist industry, but being in Niagara Falls, I have always been in awe of the raw power surrounding us. That power seems to be everywhere, not only in the water, using hydro power, but in the air, and it has energized men of ideas for the last 100 years or even longer.

The first major hydroelectric projects in the world were conceived and implemented in Niagara Falls, by George Westinghouse, Thomas Edison and Nikola Tesla. That was a paradigm shift in the standard of living for all of humanity back in 1890. Of course, we're at 2002. The automobile was invented at roughly the same time as those power generating stations were first put on line.

We're scratching our heads right now, searching for alternative fuels. I was sitting watching TV last week, where I saw this advertisement put out by the Ontario government for ideas on what to use as an alternative fuel.

Something had come to mind that I read about two years ago, and that fuel is not fuel at all; it's cars that run on air. That sounds almost fabulistic, a car that runs on air. You have to burn something. Well, this inventor in France apparently developed a piston engine that doesn't burn anything. What it is operated on is compressed air. It's a vehicle like any other vehicle. It has wheels and rack-and-pinion steering and a steering wheel and everything else that goes along with what vehicles have to do, but it runs on air.

The way it works is that you drive the vehicle up to your house, plug it in overnight as if you were plugging in a block heater in your car, like they do up north all the time when it gets really cold so the engines don't freeze up.

1520

**Mr Smitherman:** We haven't had to this winter.

**Mr Kartofel:** No, not this winter. But I've seen it happen in the past.

You have a little compressor such as this Canadian Tire special, maybe a little larger, under the hood. Do you see what that looks like? Cheap. What this air compressor does is fill up air tanks that take the place of gas tanks. These air tanks are made out of material similar to what the new swimming pool sand filters are made out of, that heavy-duty, high-impact plastic. These air tanks get filled up, and in the morning you jump in your car and away you go. You're now running on compressed air instead of gasoline or corn oil or whatever you want to put in that engine. Instead of that being injected into your cylinder, you get a shot of air that hits the cylinder—

boom; only in this case it goes, "Boom, boom, boom, boom," and away you go, up to 130 kilometres per hour top speed. Your air tanks will run out of air at 200 kilometres of driving, and then you have to recharge your tanks.

Of all the vehicles on our highways in Ontario and all over North America, probably 85% of them are privately owned passenger vehicles, whether they're sedans, vans, light pickup trucks or something like that; 85% of those vehicles are the ones that are on the road. Next you have heavy transportation, motor coaches, buses, transport trucks and the like.

These vehicles were unveiled at the South African auto show in October 2000. The person who invented them obtained his worldwide patents and trademarks for this type of engine. The engine itself only weighs about 35 lbs and is about the size of this briefcase. In fact, a physically fit male can pick it up with one hand—some females, too, I suppose.

Costs to run a vehicle on a combustion engine today are somewhere between 10 cents and 15 cents per kilometre. To run this type of vehicle, you have to pay for the electricity to run the compressor, to charge the compressors. The running cost per kilometre would be about one cent per kilometre, which is one tenth to one fifteenth the cost of running a gasoline-powered engine, on any car right across the line. That's significant.

The only thing is, there is one serious problem which I worried about; they didn't touch on this in that newspaper handout article that I think you have all gotten, or will get: government road taxes. As we all know, we all love our cars, we all buy our gasoline, but up to and over 50% of the cost of that gasoline is road taxes. Governments and their civil services are highly addicted to these road taxes. Many politicians would shrink back, aghast: "What will happen to our road taxes?" Very simple. Not to worry. We all understand that roads and highways are not free, although—

*Interjection.*

**Mr Kartofel:** OK, whatever. Roughly 50% of every tank of gas goes to taxes, whether federal or provincial—I don't know what the splits are—and the revenues are significant. They have to be replaced by something else. The average family car might buy up to \$200 worth of gasoline per month; \$50 a week or less, depending if it's a micro or whatever. You have to replace that \$100 worth of tax that the government collects with something else. Send them a bill like the 407 boys do. It's very easy. Send them a \$100 bill a month, and there you go. People will understand, I'm sure, because what's the alternative, sucking on the tailpipes of those vehicles today?

By the way, these vehicles come in three formats. They come in six-passenger minivans, they come in sedans and they come in light-duty pickup trucks, ideal for our situation here in Ontario.

**The Vice-Chair:** Mr Kartofel, that was a very interesting presentation. I'm afraid your time is up and there is no time for questions, but thank you very much for coming and giving us your time.

**Mr O'Toole:** Tell us the cost.

**The Vice-Chair:** There is no more time for questions, Mr O'Toole.

## ALUMINUM-POWER INC

**The Vice-Chair:** Our next presenters are Aluminum-Power Inc, the Honourable Robert Kaplan, CEO, and Mr Vijay Sharma, the president. Please make your way to the front. Go ahead.

**Mr Robert Kaplan:** Madam Chairman and members of the committee, thank you very much for inviting us—on really short notice but very much appreciated—to come and tell you about the work of our company. We have made an important breakthrough in the technology of alternative energy that we want to tell you briefly about today, and I hope we'll be able to leave some time for questions.

For the last five years, we've been doing research into producing an electric flow from aluminum. We all know about lead batteries, nickel batteries, zinc batteries, cadmium batteries. It has been known by physicists that aluminum has the highest potential to produce energy, but a tremendous amount of research that has been put into it in the past has not succeeded in harnessing the metal to get it to oxidize in a flow which would make its electric product useful. We have done that in the last five years, as I say, in our lab in Downsview, Ontario. We are now at a point where we are wanting to turn our research project into a commercial business producing fuel cells based on aluminum.

I'd like to introduce the president of our company, Vijay Sharma, who is with me, and who will make our presentation.

**Mr Vijay Sharma:** Thanks, Bob. As soon as technology catches up with us, I'll carry forward.

**Mr Kaplan:** I could make a brief point that, by weight, aluminum has more electric energy density than gasoline does. So the power is there; it has just been a matter of getting it out, which, as I say, we have done.

**Ms Churley:** It was five years ago, did you say?

**Mr Kaplan:** We started five years ago, yes, working with aluminum.

**Ms Churley:** How many people do you employ?

**Mr Kaplan:** We have 15 people in the lab; a total of 21 altogether. We have six PhDs, including our president. 1530

**Mr Sharma:** OK. When we saw the newspaper clipping describing the select committee and its call for speakers, the first thing I noticed was the title, alternate fuel sources. It came immediately to mind that hydrogen is not the only game in town, and I'm here to make a case for that. When we think of alternate fuels, fuels other than gasoline or diesel, or fuels that we do not necessarily burn, hydrogen is not the only one in town; there are others. Aluminum-Power is focused on the delivery of electricity from aluminum, not by burning aluminum but by making aluminum undergo a chemical reaction.



Our company has been funded by Angel Investors since 1996. We were incorporated in 1999, and today we employ 25 people in Ontario in our laboratory in Downsview. We're focused on commercializing technology for three principal areas: one is portable electronic devices like cellphone batteries, laptop batteries, digital camera batteries; the other is stationary power systems like residential backup power systems that the people of eastern Ontario would have found particularly useful in 1998, commercial backup systems, portable generators; and lastly, the one area that has probably the single greatest impact for the environment in Ontario, electric vehicle power units.

Very quickly on the slides I'd just like to show some of the various products we're working on. That's a cellphone, that's a digital camera battery, that's a military power pack.

**Ms Churley:** Could we have the lights turned off, or are they already?

**Mr Sharma:** They are. Here are some backup power station applications.

Our aluminum technology is very well-suited to replace stationary diesel generators. If you notice in this picture, which is a US picture, there's a diesel generator with about 30 drums of diesel, and half of them are encased in a fence, because that's the way it's supposed to be, and the other half are violating a series of municipal codes, I'm sure. People don't like dealing with fossil fuels that need to be burned. We get around that, we solved that issue, with our aluminum technology.

We have a whole suite of military applications that we are working on. So the technology applies in a variety of sectors.

The basic technology is very similar to hydrogen technology. The few key differences are that our fuel is aluminum, solid aluminum which comes in plate form. It doesn't burn on its own. I can ship it via FedEx or UPS and no one thinks twice about it. I can cook with it, and I can drink my Diet Coke from it. That's aluminum that we use for fuel. We have a gas diffusion cathode, which is a simple carbon-based material, and it can be manufactured in Ontario without great difficulty. And we have an electrolyte. The electrolyte is an alkaline solution in which the reaction takes place. So, there are three very simple components.

As Bob had mentioned, when we compare the energy of aluminum to other materials, aluminum wins the race. Aluminum here, if we can see in the blue box, provides anywhere from 800 to 2,000 watt-hours per kilogram of energy. In comparison, a lead-acid battery provides about 50 watt-hours per kilogram. So aluminum is anywhere from 30 to 50 times more energy dense than a lead-acid battery in use today.

That's not a good slide; it's cut off at the bottom. If I can refer you to page 4 of the handouts, if you have those, the second slide on the bottom isn't truncated like it is on the screen.

**Mr Kaplan:** The bottom two lines are missing. We need to show you those in the document.

**The Vice-Chair:** We have them on our handout.

**Mr Kaplan:** They're just not on the wall.

**Mr Sharma:** When we look at various fuels, the first column I'd like to draw your attention to is the energy density column by mass. The first one on the list is hydrogen. On a mass basis, one kilogram of hydrogen has an enormous amount of energy: 141 megajoules of energy. In comparison, a kilogram of gasoline only has 47 megajoules of energy, almost a third; natural gas, 47 megajoules; ethanol, 22 megajoules per kilogram. Kerosene is pretty high: that's why it's in jet fuel; crude oil, very high. Wood comes in at 17, not so good; coal at 31, but it's really cheap so it's OK. Aluminum comes in at 29 megajoules per kilogram on a mass basis. But mass isn't everything, because, as we know, hydrogen is a gas. If we look at the column here where we compare the fuels on a volume basis, it tells a totally different story.

Hydrogen is very difficult to compress, and so there are two technologies we use in the hydrogen industry to try to transport hydrogen. One is we try to make it where we need it, and that's called reforming or generation in place. That has its own drawbacks. The other is we compress it, and we compress it at 500 times normal atmospheric pressure and we carry it around in tubes marked "dangerous." But even doing that, we can't put enough hydrogen into one of these tubes to let a car go more than 150 miles before you need to refill the hydrogen. It's not hydrogen's fault; it's our fault because we don't know how to put enough of it into a small space.

As we go down the list, we'll see gasoline, because gasoline is a liquid, on a volume basis still has 35 megajoules per litre of energy, which isn't too bad. Hydrogen comes in at a hundredth of the value of gasoline. Natural gas, because it's a gas, is much lower; ethanol, 18; crude oil, 38; and coal on a volume basis, 63. So you can see the story for coal is very good. It's good on a mass basis and on a volume basis because coal is relatively light. It comes in very well on a volume basis. Aluminum on a volume basis, however, is 79, the highest on the list. In fact, it's twice as energy dense as gasoline, twice as energy dense as crude oil, and I can't even do the math, the number is too big, when we compare it to hydrogen. It's on the order of 1,000 times more energy dense than hydrogen gas. That has some great implications.

This slide the computer doesn't display very well, but if we turn to the next page at the top, we talk about the total energy cycle. The first time I made the pitch for aluminum was at a conference in San Antonio, Texas. When I mentioned we should use aluminum as a fuel, people thought I came from Mars and were just about ready to send me back, because it's a very novel idea. In fact, it's not a very novel idea. The likes of Alcan and Alcoa have ventured down this road before. They ran into some significant obstacles and abandoned their efforts. We never stopped, and so we strongly believe we've got some solutions to the problems they once faced.

The key in the total energy cycle is to position whatever fuel you care to use within the usage cycle. In the far left I have the various fuels: aluminum-air fuel cell, electric battery, gasoline and hydrogen. In the columns, moving over, in the first column is the ore production, the fuel production, crude oil production and the crude fuel production. Whatever fuel we use, we have to start somewhere with it, and each of the four different methods starts with fuel somewhere. The next column over, where it starts with aluminum smelting, in any fuel that we decide to use, we have to process that fuel, whether it's aluminum, whether it's electricity. Mother Nature provides the water and we have to harness that water at Niagara Falls. For gasoline, we have to refine the gasoline. For hydrogen, we have to generate this hydrogen. Whether it's by splitting water or whether it's by stripping it off of gasoline, we have to make the hydrogen. The next step is that we have to transport our fuel, whether that's electricity and distribution lines or it's gasoline and gas trucks. The next column: we have to fuel our devices. And lastly, we use our devices.

#### 1540

So when we look at the way fuels are used, aluminum is no different than any other fuel, whether it's gasoline or hydrogen. The key difference, though, is that when we get to the last step in the aluminum-air fuel cell, there's an arrow that takes us back to aluminum smelting. That's because aluminum is unique. The by-product of our reaction is something called aluminum hydroxide, which happens to be about step number 4 in the 10-step process to make aluminum. We can take our by-product and put it back into the process and remake aluminum into fuel again. We can't put in energy for free; we have to put that energy in from somewhere. In Canada, we have a wonderful thing called hydroelectricity. Mother Nature provides us consistent electricity with no greenhouse effect, no environmental impact that's ongoing, virtually forever. Like they say in Quebec, as long as James Bay is flowing, they have very reliable and very inexpensive power. It's the perfect place to make aluminum fuel.

The other considerations for any fuel are infrastructure cost, environment and safety. To deliver aluminum, we already have the infrastructure. There's no additional expense required. Environmentally, aluminum is stable. The by-product is, in fact, used in lake remediation. So even the by-product of our system isn't environmentally dangerous, and it's inherently safe.

As we apply it to automobiles, we see that for the past 100 years, the automobile hasn't changed. It still uses an internal combustion engine with hazardous emissions. We've come to realize that, at some point, hydrocarbon fuels will run out—maybe not in our lifetime, but in somebody's, certainly. Hydrogen is only an incremental step to solving this problem. We start with an expensive hydrogen fuel cell—a dangerous fuel—with no infrastructure in place today to deliver this fuel, and then we ask that you refuel your vehicle frequently at fuel stations that don't yet exist. I don't know if solving this problem

is the government's issue or the issue of the companies selling the fuel cell, but it certainly is somebody's.

Aluminum power will change the mould. We start with an aluminum-air fuel cell that inherently has no emissions. There is no tailpipe. We don't leave anything on the road or in the air. Aluminum is the third most abundant element on earth. We propose that, because of the energy density of aluminum on a mass and volume basis, you would only refuel an aluminum vehicle once every several thousand kilometres, which means that once every two or three months for a typical Canadian, you would take your vehicle in for a 15- or 20-minute aluminum change—not an oil change, because it wouldn't need oil, but an aluminum change. The aluminum fuel that would be recovered in that aluminum change would be sent for recycling. We'd have a zero reliance on fossil fuels, we'd have a zero reliance on imported energy and, ultimately, we'd have a national energy stock of 700 kilograms of aluminum per vehicle. That could be recycled continually, until Canada wouldn't have to rely on anybody for its energy.

It all comes down to cost. If it costs three times as much as gasoline, no one's interested. But it doesn't cost three times as much as gasoline; it's competitive with gasoline. If you look on the chart at the two circles, the one in the upper left shows that the aluminum-powered second-generation vehicle will achieve economies of about six cents US per kilometre to operate that vehicle. That translates to about 85 cents or 90 cents per litre of gasoline. In the third generation, once some form of aluminum recycling is in place, the costs come down to less than five cents US per kilometre. That makes our systems competitive with any vehicle in the US that gets less than 30 miles to the gallon, which is most vehicles. Certainly, in other parts of the world where fuel costs are higher, the aluminum system is more competitive.

To summarize aluminum technology strengths, aluminum has a very high energy capacity, higher than lead acid batteries; in fact, it's higher than hydrogen, on a volume basis. Aluminum, water and oxygen, the three components of our systems, are regularly available and inexpensive. The by-product is recyclable and reduces reliance on fossil fuel sources. We don't generate greenhouse gases. Aluminum can be renewed as a national energy stock. The system is environmentally responsible and ecologically friendly, it's cost-efficient and the distribution infrastructure is in place.

Finally, Aluminum-Power Inc is called to action. Aluminum is a viable fuel alternative and we feel the Ontario government should promote technology, research and development, particularly in the automotive industry, and should participate actively in the Canadian fuel cell alliance and broaden its scope to welcome all fuel choices. Our feeling is that the alliance was born in British Columbia, where the 800-pound gorilla that was fed on hydrogen is doing all the work and talking. We'd like to get a piece of that in Ontario, but it requires that we open our eyes and realize that hydrogen isn't the only fuel choice.



We'd very much like to see the government of Ontario establish criteria to assess the environmental impact of fuel cell applications and fuel cell types over the total energy cycle. Although hydrogen, when it goes through a fuel cell, spits out water, which is very clean, no one seems to be talking about how we're going to make this hydrogen. Are we going to be burning coal or are we going to be burning diesel to make hydrogen? So an environmental assessment that looks at the total energy cycle is what's needed. Certainly, we'd be happy if the government of Ontario would fund or co-fund research and sponsor demonstration projects. For young companies, that's tremendously important.

Finally, we think the Ontario government should consider carbon credit incentives, simply because aluminum power would do very favourably if you considered carbon credit incentives to promote the use of alternate fuels.

I thank you for your time.

**The Vice-Chair:** Mr Sharma, a very interesting presentation from both of you. We have a minute and a half for the NDP and then for the government. We'll start with the NDP.

**Ms Churley:** How long? A minute and a half? OK. Fascinating. I am wondering if there are any other jurisdictions that are already ahead of us in this, or are you at the forefront of this?

**Mr Kaplan:** Not really. We are pioneers in the use of aluminum. We're the ones who have made it into a usable product and we've patented it internationally. So it's here in Ontario and it's for us.

**Ms Churley:** When you said that others had started work on this and had dropped it, what kinds of problems were they running into that you've overcome?

**Mr Kaplan:** There are a lot of technical problems to getting the aluminum to produce an electric current. Recently, for example, we had a visit from the head of research of Alcan, who had been in charge of Alcan's multi-million dollar investment in trying to make this battery. He had been away from it for a few years. Alcan had given up. He came to our lab, was very impressed and is coming on with us as a consultant.

**Ms Churley:** How far along, then, are you in the process of testing this?

**Mr Kaplan:** We don't have products yet, but we do have three or four prototypes, which we could demonstrate. In fact, we ask the committee, if you'd like to hold this meeting at our lab, we can show you a cellphone battery that runs on aluminum. In about two weeks, we'll be able to show you a power generator that is the equivalent of a diesel or gasoline generator that produces an electric current from aluminum that runs the generator, which is the full equivalent, in production and performance, of a normal generator of the kind that's presently in big demand nowadays. We can show you some military application batteries that we've developed. We have quite a large number of potential users who have come to us and ordered samples to test with their own products, who have given us some incentives to

produce particular products for them. That is the stage we're at right now in our work.

**The Vice-Chair:** In fact, we are running this committee a little differently in that individual members do go to individual sites. So even if we don't go as a committee, if there's anyone interested on this committee, we thank you for that invitation.

It's the government's turn.

**Mr Hastings:** Thank you, Mr Sharma and Mr Kaplan, for coming. My first question would be, do I detect that you're excluded from the Canadian fuel cell alliance? You're not involved in their—

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**Mr Sharma:** We're not involved at this stage, no.

**Mr Hastings:** Shouldn't you be?

**Mr Sharma:** We should—

**Mr Hastings:** Or is the information, the intelligence, too proprietary—

**Mr Sharma:** I'm sorry?

**Mr Hastings:** Is the information, your research, too proprietary to share with members of that organization?

**Mr Sharma:** No, I think it's an issue that most, if not all, of the research in the fuel cell alliance is hydrogen-based, so a collaborative research environment where we bring aluminum to the table isn't effective.

**Mr Hastings:** Isn't effective?

**Mr Sharma:** No.

**Mr Hastings:** My next question relates to carbon credits. How do you see them functioning? How do you see that structure? Would it be a faster write-off on the depreciation of your R&D or would it be a tax credit for putting these kinds of devices into, say, remote stationary area power situations in northern Ontario?

**Mr Sharma:** I was thinking broadly in terms of vehicles. Ontario has a Drive Clean program where your emissions are checked. If you're emitting, you get charged a certain amount for emitting, and if you're not emitting, you get a credit. That places an incentive on the driver to look for more fuel-efficient, more environmentally friendly vehicles. Ultimately, not having a tailpipe gives them a big credit. That's how it works.

**Mr Hastings:** Having visited Hydrogenics, they said they preferred to walk rather than run, like your friends with the 800-pound gorilla in BC. Do you need to walk before you run and have your devices working in stationary power situations?

**Mr Sharma:** I think the reason you don't run before you walk is because you can't run, not because it's a wise thing to walk first. We've walked and we're ready to run. I can't speak to why other people aren't ready to run.

**The Vice-Chair:** Mr Gilchrist, you have a quick question?

**Mr Gilchrist:** Just very quickly. You might want to elaborate. First, I guess I should say I certainly would like to take you up on your offer to visit and see the prototypes at the first break we get from these hearings. But I would ask you to give some thought to the total life cycle cost because while it's certainly fair to comment about, on the one hand, nuclear power and the down-

stream and upstream costs, we can't forget that there is considerable energy required to mine the bauxite and then transport it from the tropics up here and process it. I don't need those answers today, but I'm just suggesting to you that you might want to have that in your back pocket—the total lifecycle cost of producing and using aluminum.

What I would be more curious for an answer today is about the specific by-products. I'm assuming that in the oxidation the result is some kind of oxide that comes out. What would the steps be that the government might participate in to develop the infrastructure to do the re-refining to get you to your third generation?

**Mr Kaplan:** You honestly don't require an infrastructure for the recycling of it. It's a matter of collecting it, of course, but in a certain sense that could be optional. A customer who is willing to pay for a fresh aluminum battery and throw out what is produced by the process of producing the electric current can do that. If he does that, that garbage, if I can call it that, is totally benign; it's actually an ingredient in medicine and in underarm deodorants that doesn't have any negative or adverse effect at all on the environment or human life or anything like that.

Our plan would be that a user of one of the batteries could take this residue and bring it in to be recycled. It can be recycled to produce the aluminum plate again at a much lower cost in energy and in dollars than it cost to produce the first aluminum.

**Mr Gilchrist:** So you'd propose some kind of a deposit system, at a minimum?

**Mr Kaplan:** We do, yes. When aluminum vehicles are developed, as Vijay was saying, our customer would drive his car in much less frequently than you need to do for gas—in fact, once every two or three months—and the residue would be removed, a new anode of aluminum would be put in. We would recycle that and save money in producing the next generation of aluminum anodes.

**The Vice-Chair:** Thank you very much, both of you. I've noted to the clerk that some or all committee members would like to visit. We really thank you for that invitation and for your excellent presentation.

AL WATSON

**The Vice-Chair:** Our next presenter is Mr Al Watson. Welcome, Mr Watson. As an individual presenter, you have 10 minutes, including any time for questions.

**Mr Al Watson:** I don't think I'll need that long. I wanted to put a personal aspect on your report; industry has been well represented. I want to thank the Chair for this opportunity.

I currently live off the grid, using horse power, solar, wind, propane, kerosene, and have plans to build a digester. I ask that your final report to the government, and government policy, reflect all alternative energy sources. This last number of people have certainly provided that we haven't seen the end of the alternatives. Do not set targets and pick the flavour of the day. Your

recommendations should reflect the individual, like myself, for programs, access to information, R&D programs. Do not leave this to big business only.

My needs are low-cost loans, tax exemptions and access to information. My major roadblock is batteries. I don't have a Web site, so I ask that the information on your Web site be mailed to me. If I can't have it, then I've been disenfranchised.

I've answered your questions on policy as only I can answer them, in the context of my own situation and knowledge. It's your responsibility to prorate this to a provincial level.

Every user of fuel energy opting for an alternative source is significant and the government should view that as such. Most off-grid users will build a multi-alternative source. The sun doesn't always shine, the wind doesn't always blow and water doesn't always flow. That was my main point.

Going through the report—I got it late Friday and I spent the weekend trying to go through it and write this up. I was busy until 2 o'clock this morning.

I live in the middle of a farm community in Hastings county and it totally surprised me that the farming community hasn't made a large effort to make presentations here. Every farm could be fuel energy self-sufficient, whether to manure and/or trash.

On a personal basis, I need help. Any farm or business needs tax incentives, more quickly accelerated write-offs. I don't believe in targets. I don't believe in any further government tests. These things are coming on fast and I think the marketplace will determine that they want alternative fuels, not the existing fossil fuels, given the opportunity. So tax incentives would be a major effort by the government to reflect that.

One of the questions was, who should look after this in the government? I think for ease of doing it, a special secretariat overseeing the different ministries would be the answer.

I'm not going to cover all the answers that I made there. That can be done by combining everybody's. I think big business has been well represented and the individuals should be reflected.

I hope you'll excuse me while I go through this.

**The Vice-Chair:** I want to put on the record that Mr Watson answered every single question and obviously went through the report very thoroughly. I just want to tell you, on behalf of the committee, that we really appreciate the time and effort. We wish every citizen were as involved as you are, sir. Thanks. Continue now.

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**Mr Watson:** OK, thank you. I think with deregulation I can only use my phone bill, it tripled with deregulation, and Hydro is going to go up. It doesn't matter what the weather is, it's going to go up. Some good friends wanted to put hydro into their property, four poles from the end of the existing line, and Hydro wanted \$10,000. Ten thousand dollars would put a reasonably good solar energy system in any house. So as far as competing, I think the alternatives can compete.



Wind power: I hate seeing references to the utilities being given complete access to building wind power. I think these need public process and that should be a major item in the government's policy.

Switching to alternative energies should only be done on, say, a retrofit, if it's going to be done, not just say, "Oh, we're going to do this, that and the next thing."

**The Vice-Chair:** Mr Watson, while you're skimming through this, could you let us know which questions you're on as well?

**Mr Watson:** I'm sorry. I'm heading toward 52.

I think right now I don't want to debate aluminum or hydrogen fuel cells. They are there, they are working and they're in homes in the United States at a price of US\$10,000. Once they're manufactured, whether it's hydrogen and/or aluminum, these prices will drop amazingly. I think targets aren't needed. We need exemptions on taxes, and these alternatives will become the common means of fuel and energy.

I really don't need to go through all the individual issues as well.

Page 34 of the report, the role of the Ontario Energy Board: I think there should still be responsibility handed to this board. I don't know the background of why that question would be asked.

Anyway, I'll be heading home and think of all the questions or statements I should have made, but I think that should pretty well do for what I have to say. I would like this committee to recommend to the government that the individual be reflected in whatever policies are made. Thank you.

**The Vice-Chair:** Thank you very much. We have two minutes per caucus.

**Mr Gilchrist:** Let me just say that you are, to the best of my knowledge, the only person out of 12 million in Ontario who has written back to us and come and made an oral presentation. You really are to be congratulated. I don't say that just to puff you up; just the opposite.

The government and members of all parties are committed to this committee achieving the most realistic but at the same time the most visionary possible movement when it comes to how we derive our energy and then how we use it. It seems to be something that touches everyone's life. So while time is now becoming limited as we move toward preparing our final report and incorporating your thoughts and those from others who have taken the time to write to us, please engage your friends and your neighbours and your relatives and anyone else you think of. They don't have to be as thorough as you have. Even if they only want to pick one topic, it's critically important that we hear back because this could very well set the stage for the next 10, 20, 30 years in terms of how energy is developed in this province. So I really want to thank you very much. I can't think of a single question, because you already answered them all, but I appreciate particularly your coming all the way down from Hastings county and I wish you a safe drive back. Thank you again.

**The Vice-Chair:** Thank you, Mr Gilchrist. Ms Churley, would you have a question?

**Ms Churley:** We all appreciate your thorough presentation. It's great. I look forward to matching some of your answers with the questions more thoroughly.

You mentioned the possibility—well, you didn't say possibility; for sure—of hydro prices going up when the deregulation comes. I certainly agree with that and am very concerned about it. In fact, our party is trying to stop it. What's interesting is the intersection between what we're doing here on this committee and that happening at the same time, and I haven't quite figured out, because that's intersecting, how each is going to impact on the other.

One of the questions I had, and I wanted to have this clarified perhaps by you and then the Chair: you mentioned that you don't have a Web site, and that's true of lots of people who may have an interest in this. I take it you had no trouble getting the information once you asked for it, and I'm wondering what the process is for people, if they can write in and if everything can be sent by mail, and if that's what's happening.

**Clerk of the Committee:** It's available at our government of Ontario bookstore, but if people call in to my office and they've expressed some difficulty, we will mail them out a copy.

**Ms Churley:** So they see it on TV—I presume that's how you found out, in the paper or on TV—and you can call the number or write in, and any submissions that you request can be sent by mail or they can pick it up at the library.

**Clerk of the Committee:** Yes.

**The Vice-Chair:** As well, Mr Watson, public libraries across the province will have copies.

*Interjection.*

**Ms Churley:** Is there a deadline? Yes, that's a good question.

**Mr Watson:** The trouble is, if you're not aware of it, you don't know.

**The Vice-Chair:** Yes. Good point, sir. As Mr Gilchrist said, let people know, and we will all let people know that—

**Ms Churley:** Is there a deadline for getting information?

**Mr Gilchrist:** The middle of March.

**The Vice-Chair:** The middle of March is our deadline.

**Mr Watson:** The Belleville paper—

**Mr Gilchrist:** Every newspaper in the province has it.

**The Vice-Chair:** Thank you very much, Mr Watson.

BRUCE LOURIE

**The Vice-Chair:** I'd like to call the next presenters, LourieLove Inc, Mr Lourie. You have 20 minutes, and that would include any time for questions.

**Mr Bruce Lourie:** I could actually begin while this is warming up.

My name is Bruce Lourie and I'm with a firm in Toronto called LourieLove Inc, but through that I'm involved in a number of organizations and initiatives, some of which I've listed at the top of my presentation. But just for your information, I'm a member of the electricity transition committee that Minister Wilson set up and I've been heavily involved in a group called the Canadian Energy Efficiency Alliance. I'm also working with a collection of industry organizations right now in Ontario and across the country looking at the certification of green electricity.

I want to thank the select committee for offering me this opportunity. I've got a fair bit prepared. I'm going to run through it reasonably quickly, but I hope you'll be able to see the notes and note any questions that you may have for the end. I hope to leave five or six minutes for questions.

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I'm attempting to represent the interests of for-profit and non-profit organizations that wish to see the government play a responsible role in the setting of policies that promote energy efficiency, renewable energy and emission reductions. We call these the three Es of wise energy policy. The views expressed here, though, are my own. I'm going to focus my comments on four areas that the committee identified in the last report: promoting the supply of renewable energy, the role of the Ontario Energy Board, energy conservation efficiency measures, and education and consumer awareness. I'll address each of those in that order.

Before I do, I just want to note that I do have some concern regarding the lack of serious attention that the Ontario government has paid to the development of policies that support energy efficiency and renewables in a competitive electricity market. I spoke before the standing committee on resources development in August 1998. I think, Marilyn, you were in the room at that time. I noted then the need to begin the development of policies in conjunction with the development of market rules. These aren't something that you develop after the market rules are created. I noted the declining investments in energy efficiency by Ontario's utilities. At that time, I predicted that electricity rates would increase with competition. I think I might have been the only person three years ago predicting that. I explained that consumers' bills could be reduced through investments in energy efficiency, and I made one recommendation to the committee, namely, that a fund be created to invest in cost-effective energy efficiency. This was a recommendation supported by many other industry, non-government and labour organizations.

Here we are, three and half years later, and the trends identified continue, but I think at even more alarming a rate. We have little support for energy efficiency. We have our major electric distribution utility, Hydro One, admitting that it has not interest to support any programs that do not contribute directly to its own bottom line. It is now generally accepted, I think, that electricity prices will increase. Our regulator, the OEB, is overburdened,

placing energy efficiency on the back burner, and OPG last week dismantled the last remnants of its energy efficiency capacity internally. The Ontario government has not introduced any new measures to address the well-known failure of competitive markets to protect customer interests related to energy efficiency and increasing rates.

Despite this gloomy picture, there is an upside. There are simple, low-cost ways of improving the situation, and there are hundreds of committed companies, organizations and individuals ready and waiting to help Ontario become a strategic, knowledge-based leader in the adoption of efficient technology. We work with dozens of manufacturers, utilities, with consumer groups and small generators, all looking for a supportive policy environment in which to do their good work.

My first two recommendations to the committee are therefore these: first, to recognize that energy efficiency measures are the top priority for cost-effective reductions in emissions, reducing reliance on fossil fuels and creating jobs in Ontario. I think, conservatively, Ontario could be using 25% less energy, while saving customers money and making the economy more competitive. Energy efficiency investments, in my view, should therefore supersede any new supply investments.

Standard setting through the Energy Efficiency Act, the Ontario building code and the Ontario Energy Board are the most important activities for the Ontario government to pursue. The broad range of customer, small business, job creation and competitive environmental benefits that derive from investments in energy efficiency are too dispersed for any one entity to aggregate the value. This is one of the real challenges of energy efficiency that I don't think is well understood. It's for precisely this reason that governments are required to intervene and set standards that capture and distribute these benefits. These are low-cost measures to government, with millions of dollars in benefits to customers.

I think there are three principles that should guide the government in the consideration of a strategy for alternative energy. One, government should not be in the business of direct consumer education, customer communications or industry training. They should, however, provide financial support, leveraged with the private sector—when I say “the private sector,” I mean non-profit organizations as well—to educate consumers, support training and recognize certification programs. This funding should be seen as an investment in competitiveness, customer bill savings, health care cost reductions and avoided environmental liabilities.

The second principle: government should not provide direct subsidies to companies. They should, however, develop policies and regulations that create frameworks for competitive activities to deliver energy efficiency and develop renewable energy sources.

Third, government should not interfere in competitive markets. They should, however, set standards that protect consumers and the environment. Voluntary approaches that request companies to make investments that do not contribute to their own bottom line do not work. Alterna-



tive service delivery within a regulated policy framework with clearly articulated performance objectives is the way the Ontario government ought to conduct business. It is with these ideas in mind that I will proceed with my specific points to address the committee's questions.

First, promoting the supply of renewable energy: low-impact renewable energy currently contributes less than 1% of Canada's electricity supply. I have also included in here an Environics poll. When asked, "What should be the major priority of electricity suppliers be?," 51% of people in Ontario said, "More renewable energy resources," and 47% of people across Canada did. You will note that only 4% of people in Ontario suggested that increasing reliability should be the number one priority. I think what we hear from companies are those statistics turned the other way around.

To the question, "Should a provincial strategy on alternative energy and fuel sources be developed?," yes, certainly it should be. This strategy should be demand driven and based on the principles of market transformation whereby information, institutional capacity, market credibility and policy measures are adopted to overcome the barriers to market adoption.

The strategy consists of four pillars:

First, communication support to inform consumers of the consequences or benefits of their electricity choices.

Second, access to emissions and electricity supply tracking data for verification of clean energy claims. I'm recommending through here that third party certifiers of clean retail electricity be developed to support verification in the province. Ontario is in the enviable position of having a sophisticated tracking system to verify claims, and I think we should take advantage of this to provide that information to customers who want to be confident that when they're told they're buying green or clean energy, that's truly what it is.

Third, I think the province should consider financial support toward the establishment of an independent, multi-stakeholder body that can provide this third party certification. I have attached to this document the first attachment which on the top says, "Green Energy Ontario/Clean Energy Offerings," which is a document that was produced by this nascent multi-stakeholder group in the province.

Finally, a performance target of 50% clean electricity generation should be set for the province by 2010. If this target is not met, a regulated mechanism should be developed.

I know you've debated the terms "green" and "clean" and it's a little complicated. I make reference to "clean energy," which essentially is in the definition used by the clean energy group and excludes fossil fuel generation, with the exception of high-efficiency gas cogeneration. It excludes nuclear power but includes almost everything else. I meant to attach one more document on that.

The specific source of energy, though, may be less relevant than the nature of the development. I think first and foremost the province should be supporting distributed sources of energy. Our previous speaker from

Hastings county making reference to farms is a perfect example of that. Those kinds of energy sources should be developed. Barriers to the expansion of small regional energy projects and commercial building-size systems need to be lifted and market rules that discourage creativity in the development, marketing, distribution and sale of electricity from these facilities need to be adjusted.

I'm going to skip down to the next question, "Should Ontario develop alternative fuel/energy procurement targets and requirements" for the provincial government, and should they also be applied to the "municipal, university, school and hospital sector?" I think Ontario should make a firm commitment with a target and I'm proposing a 50% provincial procurement target for clean energy and alternatively fuelled vehicles by 2010. This procurement policy should be promoted for the municipal, university, school and hospital sector, and a funding formula for government-funded bodies such as those should include incentives for meeting those targets.

The next area is the role of the Ontario Energy Board. Demand side management includes any measure that modifies the demand for energy. In its broadest definition it can include load displacement, fuel switching, load shifting, peak shaving, load reduction and strategic load growth. These are all definitions under demand-side management. I'm going to focus primarily on energy efficiency and energy conservation within that.

The concept of DSM was developed by utilities that owned the generation, transmission and distribution, like the old Ontario Hydro, and therefore they had a strong business incentive to manage the entire electricity system, with a goal of avoiding the costs of having to build new power plants. With the advent of competition and the break-up of the monopoly, this economic incentive no longer exists. It is for this reason that most competitive jurisdictions in the world mandate energy efficiency in restructured electricity markets. These are mandated through charges, set funding allocations or the establishment of a fund set-aside requirement on the sale of generation assets.

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I don't know if this committee has explored those kinds of mechanisms in the United States, Australia, the UK and Scandinavia, but you'll be hard-pressed to find a jurisdiction that isn't doing something like that with respect to energy efficiency, with the exception perhaps of Alberta.

"Should the OEB require electricity distributors to pursue demand-side management programs to deliver energy efficiency as it currently does in the gas distribution sector?" Yes, and this measure, if implemented correctly, may be the single, most important measure for the Ontario government to introduce to reduce emissions and reliance on fossil fuels. I should note too that I have been working very closely with the Ministry of Energy, Science and Technology and the Ontario Energy Board on this issue and I believe there is interest in developing this. I think what's needed is a recommendation from the

committee to have this activity pursued aggressively and at a greater pace than it currently is. There are four components to my recommendation:

That the Minister of Energy, Science and Technology require, through appropriate regulations and oversight by the Ontario Energy Board, that all electricity distribution companies invest either 0.4% of their total revenue on their own energy efficiency programs or 0.35% of total revenue on programs undertaken for them by other utilities or a designated third party multi-stakeholder organization. The reason we're suggesting this is because, unlike the gas sector with two utilities, we still have about 90 utilities in Ontario. Many of them won't have the capacity to deliver programs on their own. They should be given the option to have those programs delivered on their behalf, either by other utilities or a third party body.

Second, that the OEB regulations ensure that the funding for investments in energy efficiency be bundled into the distribution rates and be in excess of the rate of return on the regulated rate base and be administered in a separate account.

Third, that the OEB regulations regarding energy efficiency provide for a mechanism such as the lost revenue adjustment mechanism and also the shared savings mechanism. These are the two mechanisms that the OEB uses right now for the gas utilities that have resulted in the great success we've seen from companies like Enbridge in exceeding their energy efficiency targets and returning significant value to the shareholders of those companies.

Fourth, that the OEB convene a generic hearing on energy efficiency activities to develop an agreement on issues such as planning, reporting, measuring the effectiveness of energy efficiency delivery, evaluation, lost revenue and clearing of deferral accounts.

These are all quite specific, detailed recommendations, but I noted in your comments that you were looking for specific detail. If there is anything that needs further clarification, I'd be happy to provide that at a later date.

If we do all this, an amount of no less than \$40 million per year, which is 0.4% of revenues, would be allocated for electricity DSM programs. If we were doing this on par with many US states, we would be investing closer to \$250 million, but I've put here a very conservative estimate, recognizing the climate in Ontario. Ontario already has a well-run DSM program in place for its gas utilities. A level playing field is required so that the electric distribution companies are doing the same as the gas distribution companies.

The next point: energy conservation and energy efficiency measures. In addition to the important role of the OEB I just described, the Ontario government must also play a leadership role in setting targets and standards for the adoption of energy efficiency measures.

You've asked, "Should the Ontario government establish energy savings targets for its own operations?" I say yes, the Ontario government should adopt a house-in-order retrofit program for existing and all new buildings,

with a goal of an overall reduction in energy consumption from buildings of 20% by 2010.

There are two components supporting this recommendation. First, establishing facility audits for all existing buildings. Second, any new buildings receiving provincial funding or for provincial use should be designed to use 75% of the energy that's currently in the Ontario building code requirements. I can mention here that that's very doable. You could build a building today using 50% of the energy of the current building code requirements.

Ontario has a long history of being a leader in the development of codes and standards. I've noted here some of the history that you can look at. We've also noted here the 700 buildings the government occupies and the close to 10,000 vehicles. I know the government has commissioned reports on how they can improve the efficiency of those and I think they should move forward. There are opportunities for very significant cost savings within the government's own budget by retrofitting their buildings.

You've asked, "Should a renewed energy efficiency and conservation program be part of the electricity market opening in Ontario?" Yes, certainly this should be. I've identified several components.

First, I think the province should allocate \$1 million per year for five years to support the establishment of an energy efficiency centre for training, education and technology demonstration, as described in detail by the Canadian Energy Efficiency Alliance. Funding from combined gas and electricity DSM activities should be allocated to this initiative. I think you'll find too, when you look at the activities in other jurisdictions, that one of the most common elements in competitive electricity markets is the establishment of a centre to undertake technical training, demonstration and education for people to assist and support energy efficiency.

Second, all housing receiving provincial funding should be energy efficient and certified to R-2000 building standards. This was with respect to public housing. The Ontario building code should be updated to make R-2000 building standards a requirement for all new homes built in Ontario. Again, an R-2000 home can be built very easily today. The cost saving over time is very significant. My company actually runs the R-2000 home program in Ontario. We register over half of the homes in the country right now. We train builders. It's a very successful program. Customers like it because they save money and they get a better-built home. There's no reason why every home in Ontario should not be built to that standard. It would save people money, it would save fuel and I think it would meet all of the objectives your committee has set out for itself.

The range of products regulated under the Energy Efficiency Act should be expanded and the minimum energy efficiency of these products should be raised. The Ontario Energy Efficiency Act is actually a tremendous piece of legislation. I think it's something the province should be proud of, and they've been continuing to increase the standards under that act. I think ministry



resources should be allocated to support these efforts to an even greater extent. It's perhaps one of the most cost-effective ways to save money and energy.

Finally under this category, I think the province should develop a comprehensive strategy for setting and meeting energy efficiency targets for specific sectors using a market transformation approach. I think there needs to be, as some other jurisdictions in the country have done, a comprehensive overall program that includes all of these things: well-thought-out funding allocations and policy requirements. If you're looking for a template, the Yukon government has an excellent one.

Finally, on education and consumer awareness, to what degree should the government be involved? I've noted here that the government should not be directly involved in the dissemination of public information but they should encourage and fund partnerships and participate in those partnerships with organizations that already focus on the communication of alternative energy and fuel sources and energy efficiency.

I think I'll just conclude there and thank you.

**The Vice-Chair:** Thank you very much. You've done a lot of work. We really appreciate it. Thank you for your presentation. We have time for a quick question from the NDP and the government.

**Ms Churley:** Thank you for this. You said there was another document that you had meant to provide to us.

**Mr Lourie:** Yes. The Green Energy group has prepared a definition of green energy which I could forward to you.

**Ms Churley:** Could you forward that to the clerk? I would be interested in seeing that.

**Mr Lourie:** Certainly.

**Ms Churley:** I had mentioned earlier the intersection between the work this committee is doing and the plan to deregulate energy by May. Is it May 1?

**Mr Lourie:** Yes.

**Ms Churley:** That's very little time. Some of us are fighting it, and hopefully we'll succeed at that, because we have real concerns about all kinds of elements of that, including high rates and these things not being included. You touched on that a bit. What would you recommend this committee do in the meantime, out of all these things you write about, to try to get these things included in the deregulation?

**Mr Lourie:** From my perspective, energy efficiency is where the greatest cost-effective opportunities rest.

**Ms Churley:** If I can interrupt, if rates are going to go up, that's something we should be looking at aggressively, because it will at least help people save money.

**Mr Lourie:** Right. Supporting wind power isn't going to help reduce rates but supporting energy efficiency will. It's really the only thing that will buffer customers against increasing rates. It's also probably one of the most cost-effective things for the government to do, through setting standards and having the utilities required

under the Ontario Energy Board. So I would say the single most important thing would be to have the Ontario Energy Board instigate as quickly as possible the same kind of energy efficiency DSM programs as the gas utilities have. It's been a slow process and we're sort of looking at it in terms of a per cent revenue basis and that should be the ballpark in terms of half a per cent of—

**The Vice-Chair:** Thank you for that answer. Mr Hastings?

**Mr Hastings:** I'd like to ask you why you focus merely on energy conservation, demand management and all that. In your mind or your thinking, is there a decent infrastructure already of companies that can take on the renewables challenge and be nearly ready for job creation, export development? Because while I tend to agree with you on some of these proposals, I think we're missing the boat in terms of job creation. Our focus is so much on Ontario by adopting and bringing in efficiency standards. Are you advocating that we pretty well be the importers of all these new techniques in wind power, importers of consulting—be an importer of renewables instead of an exporter?

**Mr Lourie:** No. If you're looking at the goal of job creation and focusing on Ontario technologies, I would say energy efficiency is where we've historically had a real strength. In fact, the whole purpose would be to not import fuels but to use our domestic Ontario expertise to save energy and create jobs. If you look at successful energy conservation programs, far more jobs are created that way than through building new energy supply. The jobs are actually created in the communities, because we're talking about contractors going into homes and doing retrofits and we're talking about builders who get trained to use technologies. A lot of the technologies are manufactured here in Ontario.

**Mr Hastings:** Is there a sufficient critical mass of companies and organizations right now for export of some of this expertise in renewables?

**Mr Lourie:** I believe there is.

**Mr Hastings:** Renewables, not energy efficiency, although I'm not rejecting that out of hand.

**Mr Lourie:** I'm less familiar with Ontario's renewables capacity. It seems to me, at least on the wind side of things, that most of that technology is imported from other countries. Small hydro and biomass perhaps were stronger.

**The Vice-Chair:** Thank you very much for your presentation. I apologize to the committee for having run a half-hour late on the meeting, but we also had that young girl from St Catharines, and it was well worth listening to her as well.

*Interjection.*

**The Vice-Chair:** It's too bad Mr Bradley wasn't here. Unless there is any further business, I call this meeting to an end.

*The committee adjourned at 1633.*





## **SELECT COMMITTEE ON ALTERNATIVE FUEL SOURCES**

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### **Vice-Chair / Vice-Présidente**

Mrs Marie Bountrogianni (Hamilton Mountain L)

Mrs Marie Bountrogianni (Hamilton Mountain L)

Mr James J. Bradley (St Catharines L)

Ms Marilyn Churley (Toronto-Danforth ND)

Mr Doug Galt (Northumberland PC)

Mr Steve Gilchrist (Scarborough East / -Est PC)

Mr John Hastings (Etobicoke North / -Nord PC)

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## Legislative Assembly of Ontario

Second Session, 37<sup>th</sup> Parliament

## Assemblée législative de l'Ontario

Deuxième session, 37<sup>e</sup> législature

# Official Report of Debates (Hansard)

Tuesday 29 January 2002

# Journal des débats (Hansard)

Mardi 29 janvier 2002

**Select committee on  
alternative fuel sources**

**Comité spécial des sources  
de carburants de remplacement**



Chair: Doug Galt  
Clerk: Tonia Grannum

Président : Doug Galt  
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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Tuesday 29 January 2002

Mardi 29 janvier 2002

*The committee met at 1005 in room 151.*

**The Chair (Mr Doug Galt):** We'll now call the select committee on alternative fuels to order.

## BIOX CORP

**The Chair:** Our first presenter for today is Biox Corp, Mr Tim Haig, president and CEO. I see you have your projector all rolling there and warmed up. Maybe just state your name as you begin, and your company for clarity for Hansard. You have a total of 20 minutes. What you don't use in your presentation will be divided between the caucuses for questions and comments.

**Mr Tim Haig:** Thank you, sir. My name is Tim Haig, president and CEO of Biox Corp. About five months ago today, we had the opportunity of speaking to the select committee about biodiesel. Some of the points I'm going to go over quickly, but hopefully my presentation will be short and to the point so that we could have some clarity on some of the issues.

Also, there's a black pack in front of you. On the left-hand side are the slides, if you wanted to follow along. On the right-hand side are some support letters from different people, plus a business plan that was put together by Maple Leaf Foods and Biox about the possibility of a biodiesel plant in Ontario. So I'll just go forward from there.

What I'd like to cover in the briefing is, first, what are we asking from this committee; asking this committee to do for us, in other words? What is biodiesel? I'll recap it again. Is it real? I'll go over the emissions from biodiesel, because there were some questions the last time about the emissions, and I just want to make sure there's some real clarity on that. What are other markets doing with biodiesel and for the biodiesel industry? I'll repeat, what do we want from this committee? I think it's important to cover that again. What does Ontario get in return? Then I'll summarize.

What do we need from this committee? Yesterday, you would have had a presentation from ADM, one of the largest producers of ethanol worldwide and one of the largest producers of biodiesel. Their message was exactly the same. You will hear also later on this afternoon from the Ontario Soybean Growers, and their message is the same. What we need is tax parity for biodiesel. Tax parity with what? Tax parity with ethanol, compressed natural gas and propane. What does that mean? That

means a provincial road tax exemption to the year 2010 on 14.3 cents a litre. That is similar to what is happening right now with ethanol, compressed natural gas and propane.

In the longer term, we hope and expect to get further mandates of volumes, as other jurisdictions are doing, but firstly we feel it's important to create supply before we're able to drive demand, and I think that makes sense as far as the economics are concerned. Federally, just to point this out, the excise tax is being considered presently within Paul Martin's office.

I'll highlight again, what is biodiesel? Firstly, biodiesel is a renewable fuel made from vegetable oils and animal fats. I have some examples of what we have done here as an example. There needs to be no change to the diesel engine. I have to repeat that: there's no change to the diesel engine, unlike other renewable fuels, propane—propane's not a renewable fuel, but other greener fuels, propane and ethanol. At the higher levels, you would have to change the way the engine performs. There is no change to the diesel engine. It is not an energy-intensive process, so it is indeed a clean alternative. This is part of the shameless exploitation of the Biox name. We are here to change the economics of biodiesel and to bring it to market in its fruition.

Is biodiesel real? Firstly, in the year 2001, the European Union produced and used 300 million gallons of biodiesel. In the United States last year, they produced and used 35 million gallons. The projections are as follows: by the year 2016, the US expects to produce in excess of 800 million gallons. The Department of Energy has gone on the record to say they are in support of six billion gallons by the year 2020. That would be 15.5% of the diesel consumed in North America, and that is indeed possible to do. Currently in the United States and in Canada, there are more than 100 fleets using biodiesel and there are more than 65 million kilometres logged. So this is not a fringe fuel; this not something that has not been tested.

When we look at emissions, all of the regulated emissions are significantly reduced: particulate matter, carbon monoxide, sulphur dioxide etc. In some feed stocks, NO<sub>x</sub> is slightly higher, but a lot of them are lower, essentially no sulphur, nitrogen or aromatic compounds. It is 11% by weight oxygen, so it burns more completely, so particulate matter is significantly reduced. When we look at greenhouse gases or global warming, there's an 80% reduction on the same life-cycle costing for the

same volume of diesel. This is a significant saving. When we think about significant reductions in cancer and other birth defects, they have put down that diesel and other aromatics are contributing to that where biodiesel would not.

**1010**

If you look at other driving forces in the States, there are two or three significant bills. I've highlighted a couple of them. I believe yesterday you heard a lot more. There's a bill, the Hutchinson-Dayton bill, which is looking at the tax exemption. Right now in the United States they have a production incentive of \$1.20 per gallon. That works out to 55 cents a litre Canadian. We're asking for a paltry 14.3 cents to help get an industry underway. Again, I want to state for the committee what we're looking for. We're looking for tax parity initially and mandates later on.

What does Ontario get in return?

First and foremost, rural development: you have to think back to when ethanol was coming back into the market. There was a really good study done by economists in Ontario stating that 85% of the revenue that is produced by an ethanol plant is spent within 85 kilometres of that plant. This is the same kind of thing that could be done here.

A more stable agricultural market: you may or may not be aware that the rendering community, the people who process animal fats, is under severe pressure economically. Therefore, getting this stuff back into the market is very important.

I highlighted urban smog reduction, and global warming reduction.

First and foremost, as far as we're concerned, it will help develop a new industry within Ontario and Canada. We are a unique company. We have the newest technology. Our nearest competitor is 35 cents a litre for the production of biodiesel. We are 7.5 cents a litre for the energy and chemicals for producing biodiesel.

This happens to be the picture of a plant which we could put in Ontario. We could have this up as early as the summer. This is a 65-million-litre plant. It would be the world's largest biodiesel plant. If we had the Ontario tax exemption, we could get underway and this could indeed be in place. This plan in the back of the portfolio is a plan highlighted between Rothsay and Biox, going on the record that we'll spend our own 15 million bucks to put this in place if we have the tax exemption. I think that covers that.

In summary, market drivers are perfect for biodiesel right now, economics-wise and environmentally. The Biox process is set to change the economics. It is a Canadian technology, homegrown at the University of Toronto.

Ontario needs tax parity for biodiesel for this industry to stay in Ontario. There are all sorts of reasons why we could be moving this to the States if need be, because they already have the infrastructure in place.

Biox and Rothsay are now on the record as saying that we are ready to build. This committee, as I say, could

help launch a new market, and I'd like to ask that this action could be done immediately.

That's in summary. Thank you for your attention. I think I've left myself some time for a few questions and answers.

**The Chair:** Very adequately. We have about five minutes for each of the two caucuses.

**Mrs Marie Bountrogianni (Hamilton Mountain):** Thank you for coming again. I enjoyed your last presentation as well. I was fine until the last part when you said you may be considering going to the States because of the infrastructure. Besides what you've already stated, is there anything else this committee should consider to keep you here and to keep companies like yours here?

**Mr Haig:** We're ready to go. Maple Leaf Foods is a triple-A-rated company in Ontario, one of the biggest. We're ready to start fabrication. We're ready to get going, but the economics aren't right in Ontario. Without some incentive to make—we are very close to being on par. We are the only technology that could be on par worldwide with biodiesel, with some assistance. We're asking for a provincial road tax reduction of 14.3 cents a litre. I highlight that other fuels like compressed natural gas, ethanol and all these things have it already. I can't understand why such a great fuel would not get the same respect. We'd be ready to get going and I promise you we could have the world's largest biodiesel plant in place in Ontario by the end of the summer. That's as clear and categoric as one can get.

**Mrs Bountrogianni:** Thank you.

**Mr John Hastings (Etobicoke North):** Mr Haig, you present a very seductive case for public policy-making, but let's examine the financials here. You say the plant would cost \$50 million.

**Mr Haig:** Fifteen, one-five.

**Mr Hastings:** Canadian?

**Mr Haig:** Yes.

**Mr Hastings:** If you went to Iowa or Illinois, and any of those two states, as examples, have the tax treatment you're looking for, what would your cost be, approximately?

**Mr Haig:** The cost of the plant?

**Mr Hastings:** These are US dollars.

**Mr Haig:** It would be about the same. We intend to fabricate these in Ontario and deliver them worldwide. If I go quickly back to the picture: we intend and we would like to build that plant in Ontario. It would mean 75 jobs in the Brantford area. We could deliver this worldwide. The plant would be the same price in the States. The difference is, they're getting a \$1.20-a-gallon production incentive.

**Mr Hastings:** Well, offset that with the so-called Canadian dollar, that used to be worth a dollar.

**Mr Haig:** It works out to be 55 cents Canadian per litre. That's what the incentive is presently in the United States—presently.

**Mr Hastings:** OK.

**Mr Haig:** Part of me thinks I'd like to keep this in Canada. We developed it at the University of Toronto. Why not start this here? A simple question.



**Mr Hastings:** I tend to agree with you, but I'm not stampeded. That's not to say we don't need it, but we're international now. Boundaries are nearly meaningless in terms of economics. I still think we would like to have it here, but there is another problem that I think we need to have some numbers on, that you need to submit to the consultants, and that is the efficiency and effectiveness of this fuel compared to what the OTA was here yesterday trumpeting again, that low-sulphur diesel will be just as effective in terms of the emission of pollutants by 2005. What we need to make good sound public policy are numbers from you, from your organization—

**Mr Haig:** I will happily do that.

**Mr Hastings:** —to give to our consultants to challenge the OTA submissions on two occasions—last August and yesterday—that everything would be great if we would just go on the diesel option and not on bio.

**Mr Haig:** I appreciate their position.

**Mr Hastings:** Because they said bio will foul up their capital assets.

**Mr Haig:** All of the engine manufacturers are on the record as giving warranties for biodiesel. I understand what the OTA is saying and I support the OTA—

**Mr Hastings:** I'm not taking their case up per se.

**Mr Haig:** I appreciate that. I appreciate what you're saying, sir. I think what is important is that the OTA would be willing to—as long as they didn't have to pay a premium. Their concern as truckers is, "Am I going to have to pay a premium for this fuel?" I'm saying they will not. All of the engine manufacturers, all of the pumps and the fuel injectors that Stanadyne and Bosch are on the record as warranting—and a couple of them have gone further, to promote the idea of the use, because at low-sulphur diesel the lubricity of that fuel is going to be in bad shape. One of the great things about this fuel is that the lubricity is up.

It's easy. I'll put a set of things together for your consultants—absolutely straightforward. That's an easy challenge. Thank you for the challenge, sir.

**Mr Hastings:** I think you also need to make a submission to the standing committee on finance and economic affairs regarding our budget in 2002.

**Mr Haig:** We have.

**Mr Hastings:** If you already have, very good.

**Mr Haig:** We are there and so doing.

**The Chair:** We're almost to the five minutes. If everybody is comfortable, I could let a couple of the other government members ask some questions or make statements if they would so like to.

**Mr Steve Gilchrist (Scarborough East):** Forgive me for coming in late in your presentation here. We've seen a number of reports from different companies around the world that there are already additives that can be mixed with diesel fuel to allow it to be used with ethanol, otherwise the two products separate.

**Mr Haig:** Yes, that's a good alternative view.

**Mr Gilchrist:** Given that ethanol is just as environmentally benign, do you have any suggestions to the committee in terms of a relative ranking between the merits of an ethanol strategy or a biodiesel strategy?

1020

**Mr Haig:** I actually think they're on a par. I think the ethanol fuel is great, so I'm not poking at my other renewable friends. I think the unfortunate thing is that ethanol is more expensive than biodiesel. It's going to be difficult to be on a cost parity. The maximum you can mix is about 6.5% to 7% in volume before they separate. I think there are going to be some fantastic opportunities for ethanol and biodiesel both to be mixed with diesel and make it an even cleaner fuel. There is absolutely no question that ethanol is a great particulate reducer. It's a great oxygenate, as biodiesel is.

So I think this tax position—it sounds like I'm letting them eat our lunch, so to speak. But I welcome the fact of more renewable fuels mixed with diesel, and I would welcome this committee's saying, "Let's have renewable fuels mixed with diesel." Not just biodiesel; I open it up to renewable fuels mixed with diesel. That would help, because there's already supply in Ontario and that would help us launch it, so I absolutely welcome that. I think it would be encouraging to do so.

**The Chair:** If I can just make a comment, there seems to be, as I talk to some of the industry, a bit of resistance to move in that direction. I understand that vegetable oils will sort of cleanse the system in the tanks and they end up getting filters plugged. Do you have any plans from your side to improve this image? It's really positive out there, but I don't think the current trucking industry feels it's a positive one.

**Mr Haig:** I think the current trucking industry in Canada doesn't feel it's a positive one. I think you'll find in other jurisdictions there are some real reasons for it. Most engine manufacturers, as I said, are promoting it because the engine is cleaner. Yes, the first time you'd use it you may have fouling of the fuel filter. They change those things every couple of weeks anyway, and they change them on the road, so the truckers are not worried about that. Their engines are running cleaner and better. Let's face it, that's stuff that would be going through that filter, getting burned in the engine and we would be breathing it. It's probably better that we clean out those engines with some biodiesel and have less particulates that we collectively are breathing. That's the position we have.

Yes, it does have a solvency effect, and all of the engine manufacturers welcome that solvency effect. It's not something we should be concerned about. It's one of those things that is a good thing about biodiesel.

**The Chair:** It was just the image that I was concerned with.

**Mr Haig:** I appreciate that.

**The Chair:** We've also heard from some others, like the taxi companies yesterday, and I think we're going to hear from them later today, trying to go to a cleaner fuel and not working as we kind of anticipated to begin with. There are some difficulties there.

**Mr Haig:** I appreciate that. They are difficult decisions you have to make.

**The Chair:** Thank you very much for your presentation. It was very concise and informative. I appreciate

ciate your coming before the committee to assist us with our deliberations.

**GREEN ENERGY COALITION  
TORONTO RENEWABLE ENERGY  
CO-OPERATIVE**

**The Chair:** Our next presenter is from the Green Energy Coalition, David Poch, and I need some direction from the committee. Apparently the third presentation, Brian Young, will not be coming, and Mr Poch has asked to do both presentations, which would be a total of 40 minutes rather than 20 minutes. Doing one on each has been the request. I'm in the hands of the committee. It's a variation from what was established.

Do you want to do one presentation and call it 20 minutes, and then the second presentation? I'm in the hands of the committee.

**Mr Gilchrist:** It does set a precedent, Mr Chair. We've limited very large groups to 20 minutes. I would be more comfortable saying we can go 20 minutes. If there are still outstanding questions—but if you can incorporate the salient points from both presentations up front. Given that there are only two parties represented here right now, hopefully we would be able to digest our questions in the appropriate time.

**The Chair:** Other comments?

**Mr Hastings:** How does one differ fundamentally from the other?

**The Chair:** That I don't know. This request has come to me, and I am going back to the committee for direction.

**Mr David Poch:** There should be a slide show and two documents in front of you that I've given the clerk.

**The Chair:** OK. Let's have the first presentation proceed, and we'll see where we're at when we're finished. There's some resistance to giving you a full 40 minutes.

**Mr Poch:** Mr Chairman, if I can be so bold as to suggest, I've tried to integrate the two and in fact downplayed one in the hope that by combining them I could be briefer. I might be a little more than 20, but I wouldn't expect to be 40, assuming I can get this computer to work. There we go.

**The Chair:** State your name for clarity for the sake of Hansard, and away we go.

**Mr Poch:** My name is David Poch. I'm counsel to the Green Energy Coalition and I've also represented the Toronto Renewable Energy Co-operative in a number of matters. I practise law in the energy regulation field, so I'm routinely representing these groups at places like the Ontario Energy Board, and they've asked me to assist in presenting their position to you today.

Let me thank the committee. We were here in the fall, in August, giving an overview, and we greatly appreciate the fact that the committee has put out an interim report with specific questions.

Let me indicate who I'm here for. As I said, I'm going to try to combine this. First of all, the Green Energy

Coalition is comprised of three environmental groups: the Sierra Club, Greenpeace and the Energy Action Council of Toronto. It grew out of a coalition that was formed at the time of Ontario Hydro's demand-supply plan environmental assessment at the end of the 1980s and the beginning of the 1990s. This coalition is predominantly for the sole purpose of combining interventions in the regulatory arena for economies in that sense.

TREC is probably best known to you as the group in Toronto that's setting up a couple of wind turbines on the waterfront in partnership with Toronto Hydro Energy Services. TREC is a co-op. There will be a group of small investors putting in their \$500 and each owning a piece of one or two of those turbines. In fact, the reason Mr Young is not here today is that they are in the throes of the final signing ceremonies, trying to get the signatures on the dotted line this week with Toronto Hydro, with the host site, with the turbine provider and so on, and it's a bit of a scramble.

TREC is already looking at its next project, which will likely be a wind farm or two that will serve Toronto and other communities as well and will be a vehicle for co-ops and small-scale investors to participate in wind development in a more economic fashion.

I have provided you with two documents today. The first one is our responses to the public policy questions you posed in your interim report. There we've done a Q&A format where we respond to the specific questions the committee posed. I'm not going to take you through that; I'll just give you the quick highlights.

Our preferred strategy that we would recommend to the committee is not to do a fuel-by-fuel, technology-by-technology approach and decide, "Let's subsidize this one. Let's tinker with that," although we concede there's a distinction to be made between alternatives to electricity production and other aspects of energy such as transport fuels. But at least in the sphere of electricity, what we're suggesting is that the committee consider a renewable portfolio standard as a simpler, more elegant and, we think, more economically efficient way to inspire a move to renewables.

You will be getting, if you haven't already, a detailed proposal for an RPS from the Wind Power Task Force. I gather they're scheduled to present in the coming weeks to you. They've retained Nancy Rader, who is the foremost architect of such plans in the States, to develop one with Ontario in mind. I won't go into the details. I think you're probably familiar from the earlier presentations with the general idea of an RPS. You basically impose a requirement on the electricity sector to roll in a certain percentage of renewables, ramping up over time. That will create a demand for the product and let the market, let the investors out there, be they co-operative investors like TREC or entrepreneurs, whoever, bid in their renewables, and the cheapest will get taken up by the market and you will have that efficiency of market allocation.

It means you've got an approach which is flexible in the sense that it doesn't tie you to betting on any



particular technology. It's flexible in the sense that the government can change the ramp rate, if you will, of the target over time. If the premium that the market is demanding for those products is too high, you can lower the target, the trajectory. If you've inspired a lot of innovation and inexpensive technology, you can ramp it up. You've got that flexibility. We think it's an ideal mechanism. It is getting, as you've probably heard, picked up in a number of jurisdictions in the States, Texas being the foremost example.

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The difficult question of what technology is in or out I think can be answered simply by saying rely on the EcoLogo mechanism that's been put in place at the behest of the federal government. It's a certification program which has sorted through all the tough questions about what is clean enough water, power and so on. It seems to me that it's a very elegant package.

We've identified in that document a few other government initiatives. Just very briefly, we think the government's role in R&D should be targeted to those aspects of R&D that industry tends not to do. Industry will do its R&D for smart light bulbs because it's a product; they can patent it, they can make that investment. They tend not to do R&D in things like smarter building shell design because it's not a product that you can package and patent and capture the revenue stream from. We would say that's the distinction the government should have in mind in deciding what, if any, R&D it should sponsor: do things, obviously, that industry won't do on its own.

We of course favour a government role in enhancing education to make the sustainable solution sustainable, as it were, and the procurement role analogous to the federal government's decision to try to obtain 20% of its own electricity needs from renewables. That would be particularly helpful at the beginning of the period, before the RPS has ramped up to create a market for the products.

That's all I really want to say about renewables, because I would like to spend most of the day focusing on the other item that we want to talk about, and that is demand-side management, conservation. We have provided to you another document, entitled *The Role of Ontario's Fastest-Growing Electricity Source: Energy Efficiency*, and the balance of my presentation will focus on that.

Energy efficiency, it turns out, is the fastest-growing source of electricity, or electricity services, more appropriately, in the Ontario economy, at least through the 1990s. From 1990 to 1999, which is the information that was available to us from StatsCan, the Ontario GDP grew 20%, but demand for electricity grew only 4%. Some of that was due to small changes in the makeup of the economy and fuel switching between electricity and gas, for example. But you would ordinarily expect that if the economy grows 20%, all else being equal, we're going to use 20% more electricity. The bulk of that difference was provided by increased productivity with electricity, energy efficiency, and it outstripped all other sources of supply in the 1990s.

If you look at the graph on the slide, the green line, the upper line, is where we would have expected electricity demand in Ontario to go through the 1990s based on where our GDP went. The lower line is the actual electricity demand met. The difference was provided in the main by energy efficiency.

Looking at it another way, for 1990 there's the pie chart of how we got our electricity, and you'll see that coal provides about 18.5%. If we look at the pie chart for 1999 and look at the energy services, the electricity services, including those being met by this increased productivity, we see that productivity slice is about 16.3%, which is approaching the same contribution as coal. That's just new efficiency in that period of just under a decade. So the message to you is that this is the sleeper; this is the big term. It is the option, first and foremost, that gives us the capability to conceive of a future where we start backing out of more polluting sources like coal. In fact, we think it's probably unrealistic to think about a future where our electricity is provided by renewables unless we lay this foundation of enhanced efficiency. It is by far the most cost-effective option, and it's really the only option which could offset the growing demand for electricity, which is part of a growing economy, and make it possible for renewables to then start to ramp down our reliance on non-renewable resources.

The question is, how do we achieve more of this efficiency? We've seen a whole bunch of it happening, as the economists would say, "naturally," although, to be fair, some of that productivity was the hold-over of the programs that Ontario Hydro did earlier in the decade and in the past decade. The question is, what policy options are there for you to consider to enhance this tendency?

I guess you could raise the price of power, which I recognize is perhaps not at the top of a politician's list, and properly so.

You can put in place increased efficiency standards. Of course, we have some efficiency standards in Ontario for various appliances, but efficiency standards tend to be the lowest common denominator that the industry involved can all agree on. It tends to be the way that government looks and says, "We're at a point now where we've achieved for the most part a given standard of efficiency in a given appliance. Let's cement that with a standard so we don't see slippage and we don't see competitors come in with a cheaper, less efficient product and undermine the situation for the producers of that product in Ontario who are meeting the standard." But it's very difficult for government to set a very high standard at the best available technology and impose that on an industry, which then is forced to retool and so on. There actually is a good argument for doing it, because then of course you're keeping the field level, but understandably, government is reluctant to do that in the face of industries that are saying, "You're going to put us out of business." The government is not in an easy position to evaluate whether that is a realistic threat. So

efficiency standards tend to be a good practice, but they're not going to be leading-edge.

The preferred method is demand-side management, which is utility programs to enhance efficiency, utility programs which basically are designed to get past the market barriers that keep people from putting in place all the cost-effective efficiency that is available. The technique that has been developed for this is called performance-based regulation. It's the technique of regulation of utilities in Ontario that's becoming commonplace now. It's basically a carrot-and-stick approach which the OEB has adopted, if for no other reason for them practically, because they have so many entities to regulate, than that it's a simplified method. It works quite well in this instance.

The barriers to efficiency are many, and I just want to touch on this to give you a sense of what DSM tries to overcome. You have things like the difficulty we all face, and we can all relate to this, when we want to go out and put in place a smarter appliance. None of us are experts, or most of us aren't experts. There's a lot of effort involved in educating ourselves about what the best product is: how much is it going to save me; what is the saving over time worth versus the time value of my money, the opportunity cost to my money, what have you? I don't have a spreadsheet in my laptop that I have with me when I go shopping. It's hard enough to figure out whether the financing rates make any sense. So consumers are naturally shy to do that, and they don't have the technical skills to evaluate the options nor to understand what options are reliable and market-proven.

#### 1040

There's a significant cost there that a utility can overcome for people by in effect doing that shopping, narrowing the options and saying, "Here are three ways you can do this which we think are cost-effective and reliable." There are split incentives. The classic example is the landlord who doesn't want to upgrade the furnace because the tenant pays the energy bill. The tenant, on the other hand, doesn't have the capital or the interest in investing in a new furnace for the landlord when he's perhaps not going to be around in a year's time. So utilities can go in and find ways of, say, helping to amortize the cost of the more efficient furnace into the rates the tenant pays and everybody is happy. There are any number of other split incentives, like engineers who spec heating and ventilation systems for buildings and get paid a percentage of the capital costs, which is of course an incentive for them to spend more as opposed to spending smarter.

There are a lot of those kinds of incentives that are working out there that don't work in the interest of efficiency, and clever programs by utilities, with just a small prod in the right direction, can redirect those incentives. Access to capital is an obvious one. If you think about it, if I'm shy to spend the \$10 for the compact fluorescent light bulb rather than the 99-cent incandescent one, I may even understand that it is actually cheaper to spend the \$10 because the bulb is going to last

10 times as long and it's going to use a fifth of the energy, but I've got to come up with the capital, and of course it's a more difficult problem when you're talking about more significant investments.

The alternative is, if the consumer isn't somehow cajoled into doing that or helped in some fashion to do that, that the utility or the supply industry, and in the case of electricity the generating sector, is going to go out and have to invest in new generators which might have a 20- or 40-year payback. So the economics of the generation investment are far worse than the economics of the efficiency investment. We need to find a way to make access to capital equal so that we get more rational investment in the consumer sector. Again, utilities have ways of doing this, on-bill financing, what have you.

Non-diversified risk: if I'm a customer about to make an investment in something, that's it, I have that one investment and it's going to work or it's not going to work. A utility can go out and invest in a range of efficiency items, and if they don't all pan out, that's OK; some do, some don't. There are transaction costs for customers, hassle costs, basically, costs of arranging financing, costs of shopping, all those kinds of hassle costs, which can be overcome.

Lack of market infrastructure: the specialty item may simply be unavailable unless there's a program to get it out there in the market. Ontario Hydro actually transformed the commercial lighting market in the late 1980s and early 1990s in Ontario by bringing T3, the narrower commercial fluorescent lights and efficient ballasts, to the market, and now they have become standard, ahead of a lot of other jurisdictions, without their having to carry on with the program.

There are institutional constraints. You're probably familiar with government departments. They'll have an operating budget, they'll have very great constraints on capital budgets, and they can't swap the two. Even though it may make much more sense to put the capital out and save a lot of operating costs over a great many years, they just don't have that flexibility. So again, third parties need to come in. Of course, customers don't get any benefit from the environmental savings they can create by conservation.

So DSM is the way to do this, the way to inspire such investments. We have it in the gas sector. This is a tremendous success story which is little known. The OEB in about 1993 started a process which has led to a set of regulatory incentives and accounts for the gas utilities. Of course, it doesn't regulate the electricity sector, it's just reasserting that role, but it hasn't through the 1990s, and at this point Enbridge is perhaps the best example because they actually have a shareholder incentive to go out and better the target for efficiency that's given them. For this current year, we're just about to go in front of the board and try to get approval for a negotiated target that would have Enbridge's one-year program, 2002 program, save Ontario customers of Enbridge \$187 million spread over the life of those measures. That's what is called a net present value, so it's real dollars. And if you put a



value on the carbon emissions avoided at \$40 a tonne, it's \$291 million, so a quarter of a billion dollars in savings from this one year's programs.

They've been successful enough. Their DSM program has been growing 25% a year. They have cut their increase in gas sales that they would otherwise have to meet with new supply by 50%, and to achieve that \$180-odd-million in hard cash benefits, their program budget is \$13 million. That's all they need to go out and inspire a whole bunch of efficiency, all of which has to pass the test of being cost-effective. Then they use that to leverage the economy out there to make the investments in this cost-effective efficiency. There's how their program has ramped up with these incentives. You can see that it started off small in 1995; it's up to \$187 million this coming year. Union does not have quite the same regulatory structure in place yet, theirs are about half that, but combined you can see we're now saving Ontarians about \$300 million a year, a third of a billion dollars every year that these programs are going on now, and they're growing, and of course each year is on top of the previous years.

CO<sub>2</sub> reductions: as you would expect, the same shape of curve; dramatic savings. Each of these columns is the tonnes of CO<sub>2</sub> over the life of the conservation measures put in place. I won't bore you with the decimal places there; it's a big number.

So there's the summary. It's a dramatic success story, one that Ontario should be proud of.

What about electricity? We had some conservation programs with Ontario Hydro. They were accused of being gold-plated, they were perhaps not the most efficient at directing them, but even so—these are numbers of the OEB's report—you see that their forecast for 1993 was 350 megawatts of conservation to be put in place. That works out to about half of a Darlington-size reactor—Darlington reactors are about as big as they get—and it would be worth a little under \$2 billion in avoided capital costs if you were going to meet them at the price that Darlington was, not that anybody is suggesting you do that. Of course, it also avoids the operating costs, the fuel costs, the decommissioning costs, the refurbishment costs of centralized supply.

To do that, Hydro was spending \$250 million, and they were leveraging investment in the economy that was all cost-effective, all cheaper than the supply alternative, and was saving a huge amount. But, of course, when the OEB oversight of Ontario Hydro—it wasn't even regulation; it was just oversight—ended in the early 1990s, so too did Hydro's incentive to engage in conservation programs, and they stopped for the most part.

We've taken a shot at estimating what the realistic potential is here. As I said, we're at about a third of a billion dollars per year in gas conservation in Ontario from DSM. There's a much greater potential on the electricity side for a variety of reasons. First of all, the electricity grid gets to everybody in Ontario and the gas grid doesn't. There are a great many more electricity end uses for which conservation technologies exist than there

are for gas. Many of them can save a lot more: the now aged example of a compact fluorescent can save 60% or 80% of the electricity involved in providing a given amount of light. Gas conservation technologies don't come in that high at all.

#### 1050

There are price risk reduction benefits to efficiency, particularly important now that we're moving to a deregulated commodity market. It's in the report; I won't take you through it. But we're going to expect more price volatility in the market. Conservation tends to dampen that, so there are other values to customers as well.

All told, we think it's quite reasonable to expect between half a billion and a billion dollars per year of savings to be available if we engage in electricity conservation. I should make it clear, if I didn't earlier, that those numbers I was talking about on the gas side, the \$187 million, are the net benefit; that's after counting all the costs, including the customer costs, of putting in place those conservation measures. That's how much is actually being saved after counting all those costs. These numbers are the same kinds of numbers. These are the net savings that we're talking about—big numbers. It's the big sleeper.

What are we here asking for? The OEB has started to look at the question. They're scheduling a hearing on the distribution rate. The next hearing on the distribution rules, setting rates for the distribution utilities, will probably be in about a year from now. It's not a main issue for them. They've been, of course, preoccupied with operationalizing the market opening. We think it's time to light a match under this one and get on with it. We expect there will be some resistance from some of the smaller distribution utilities, and perhaps from Hydro One too. We don't really know who we'll be dealing with there, but we'll find out soon enough, I guess. But we think if the OEB insists that they all have to play by this rule and it gives the shareholder incentives so that it becomes a profit centre for these utilities, you'll see the same things happen on the electricity side that we've seen on the gas side. Enbridge is thrilled with this. It's a profit centre for them. It's growing in leaps and bounds. They're co-operating with all the stakeholders and interveners. They're searching for ways to be more effective. We can do the same thing on the electric side. So we're asking the committee to make a recommendation that the OEB make that job one.

There is an ancillary recommendation, and this is my final point. We have these new emissions trading regulations for NO<sub>x</sub> and SO<sub>x</sub> in Ontario. I'm sure you've heard about them. We pushed a little and the ministry agreed to include, I think it's a one-kilotonne set-aside, which if renewables and DSM perform and the t's get crossed and the i's get dotted and whatever, they can apply to get credit for that, and that amount will, in effect, be taken away from the next year's allocation to the generating sector. We think it's an arbitrary cap. We're not sure why it's capped. The potential for set-aside, first of all—why wouldn't you want to encourage all the renewables that

you can? The only way the public will benefit is if every time there's an additional kilowatt-hour of renewable power, there's one less kilowatt-hour of emissions associated with a kilowatt-hour of dirty power allowed. It seems to me that that should be just fundamental, basic, good public policy.

The other thing is that the current regulations are really unworkable. The hoops you'd have to go through to get the set-aside means probably no one is going to bother, especially if you're a grain power producer, because you don't want to get the credit and sell it back to the generating sector, because then you can no longer call yourself a green power producer: you've just enabled more coal to be generated. All you're going to want to do is just retire that.

So it's a very cumbersome approach. We're saying simplify it. In the case of conservation, if the OEB—on the gas side we have an audit process. If the auditors say, "Yes, that conservation occurred," you can give the company its little shareholder incentive reward for having achieved it. If the OEB goes through that process and finds that conservation occurred, that should be good enough for the ministry to say, "OK, we're going to reduce the cap on emissions for the generating sector, lock-step." That's what we suggest.

Thank you. I know I've gone over, and I appreciate that.

**The Chair:** Thank you very much for your presentation. I was quite tolerant. We're up to 29 minutes.

**Mr Poch:** I appreciate that.

**The Chair:** I know you requested from the two groups, but unless there is a general agreement from the committee, we'll move on. Otherwise, I can take questions, if there's a general agreement on it.

*Interjections.*

**The Chair:** OK, how be if we give a minute and a half to each caucus, starting with Ms Churley? I can, if you would prefer, start over there.

**Ms Marilyn Churley (Toronto-Danforth):** No, it's OK.

This can be really complex stuff, and I'm pleased to see your emphasis on conservation and efficiency, which is something that's part of our mandate now, to look at that as well. My question would be on your last recommendation. You're talking about getting the Ontario Energy Board to implement this, but I would expect the initiative has to come from the government, that we need to convince the government not to pressure, but to direct the OEB to get this program in place.

**Mr Poch:** There are two things the government needs to say, in our view. First, they should advise the OEB to increase the urgency of this, because there are lots of opportunities. Every time something gets built in Ontario, every time something gets bought in Ontario that's not as efficient as it could be, cost-effectively, that product, house, building, what have you, is there for 10, 15, 20 years. It's a lost opportunity. So the sooner, the better. That's the first recommendation. The OEB is looking at this.

The other point is that it should be mandatory. There should be incentives, it should be mandatory, and there should be a flexible approach where, say, small utilities who don't want to gear up to do this, understandably, can just buy the efficiency services from Hydro One or a third party.

**The Chair:** Mr O'Toole.

**Mr John O'Toole (Durham):** Thank you, Mr Poch. I appreciate it. I totally agree with the idea that demand-side management is really the full—even in the pricing theory of how we pay for what we consume, the price goes down the more you get.

**Interjection:** Reversed.

**Mr O'Toole:** However, I will say this: the money never shows up. I'm going to refute—and I have no expertise in this area at all except to say that during the period where Ontario Hydro was doing all this cost efficiency, that's the very period where they actually became less efficient. In fact, the debt increased during the period when there were those buybacks and all this stuff. They actually grew more debt during that period. I sat on NAOP for 17 weeks. I couldn't believe it. The more money they were able to save, the more wasteful they became.

The second thing is, I agree with that. I just think that with the demand-side thing—Enbridge is a perfect example. During the period when they had the highest savings, there was the most volatile pricing. They've been back to the Ontario Energy Board for price increases on storage and everything else. They've never worked at infrastructure by plowing the money back to actually—I can say to you, as a consumer and not a scientist, that I completely support your idea, but I want to hold the \$187 million that comes out of the operating plan, and they don't get to pass price increases. Otherwise, the actuarial assumptions and the economic forecasting are all BS. Am I permitted to say that? Bachelor of science.

**The Chair:** Thanks very much, Mr O'Toole; you've used up your minute and a half.

**Mr Poch:** I agree, sir, but let me be clear: it's not Enbridge who's saving the money. It's not coming out of their budget. It's all of the customers who get these efficiency measures and aren't having to buy the gas.

**Mr O'Toole:** I understand that, but it's phony accounting.

**The Chair:** Mr O'Toole.

**Mr Poch:** It's audited, sir, and the auditors are saying they're real savings. I can't do better than that.

**The Chair:** Dr Bountrogianni.

**Mrs Bountrogianni:** I would like to donate my time to Mr Poch to answer that properly.

**Mr Poch:** Thank you. The point is not that it affects the price of gas or electricity. In fact, I'm the first to agree that—I was there in those days too, sir, and I agree with you: Hydro was just not efficient. In fact, the whole idea is indeed to let the customer get efficient—the customer, not Hydro—so they don't have to buy so much of this product and have Hydro go out and spend more on



these outrageously cost-overrun plants. Of course, hopefully we're solving that problem through another mechanism. Time will tell.

**Mr O'Toole:** Consume less and pay the same.

**Mr Poch:** Yes. But the point is to make the customer more efficient. We're not talking about making the utility more efficient. That's another problem; let the OEB wrestle with that one. That's what they're trying to do with their performance-based regulation. We'll see how effective they are. It's a problem with all companies, and all monopolies in particular; I appreciate that. But what this is about is saying we have a unique regulatory opportunity to help the customer get around barriers and be more efficient. That's all I'm pitching at you. I don't profess that it's more than that.

**The Chair:** Thank you very much, Mr Poch. We appreciate your coming before the committee with a lot of good information.

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#### ENRG

**The Chair:** We'll now call forward Doug Cameron from ENRG.

*Technical problem.*

**The Chair:** When we have our equipment replaced next time, we'll go to a better yard sale and get it.

**Mr Doug Cameron:** The one I went to wasn't sufficient either. Sorry for the delay.

**The Chair:** Dr Bountrogiani, you may be interested to know that the legislative committee is reviewing this whole area of equipment and how these rooms are moving into the 21st century with technology. But certainly it's difficult right now.

**Mr Cameron:** Sorry about the malfunction here. I don't have anything on my screen, so I'm going to have to read from this screen.

**The Chair:** If you don't mind going ahead, we'd appreciate that. To begin with, Mr Cameron, please state your name for the sake of Hansard. We have 20 minutes for you. What's left over we'll divide between the three caucuses.

**Mr Cameron:** I apologize. I have nothing on my screen, and I can't seem to get beyond this screen. Is it best if I go back to my screen?

**The Chair:** Whatever works for you.

**Mr Cameron:** Here we go. I apologize. One moment, please. I've already used seven minutes. I'll be fast.

Good morning, and thank you for the opportunity to be here today. My name is Doug Cameron. I'm the manager for ENRG, a transportation provider in the natural gas fuelling industry. I have about 20 slides, which I'll go through fairly quickly.

I'll give a little bit of background on our company. We operate over 90 natural gas fuelling stations in Ontario, British Columbia and in a couple of US states. We provide the convenience of a turnkey solution that includes design, construction, ownership, operation and maintenance of state-of-the-art compressed natural gas and

liquid natural gas fuelling stations. The benefit of that to our customers is that we eliminate the need for the customer to come up with the capital to build natural gas fuelling infrastructure. It lets them do their core business and get on with their business. We look after that hurdle for them. It's a huge issue in moving forward with natural gas vehicles.

The situation as it is today is basically an environmental issue. Road vehicles are the largest source of smog and climate-change air pollutants. Since the 1970s, the number of vehicles on the roads has doubled. Vehicle emissions impact health, climate change, ground and water contamination, crops and buildings.

The Windsor-Quebec corridor has some of the highest levels of ozone more often and for longer periods of time than any other part of the country. So, cities along the 401 corridor are well-positioned to improve air quality, but they need some provincial support.

Some of the effects of pollution on health in Canada: 5,000 deaths per year are associated with ambient air pollution, and I think it's something like 1,900 in Ontario. That's from the Canadian Journal of Public Health. There are 9,800 emergency room visits, 13,000 hospital admissions and 47 million fewer workdays of productivity caused by smog and bad air.

There was an interesting survey done in the Star in I think the first part of December. Even in the cold weather, the majority of Toronto residents agreed that the air pollution in the city is terrible.

One in five Canadians has some form of respiratory problem these days. Asthma rates have increased over 60% in the past 10 years, and of course the elderly and younger children are at the highest risk. These are all backed by Canadian sources.

Some of the other costs that people don't really look at are the damaging effects. The estimated societal cost of vehicle emissions is between nine cents and 17 cents per passenger-kilometre travelled. That equates to more than the fuel cost. So, whatever we're paying for vehicle fuel doesn't nearly cover off the damage it causes, and that's for light-duty vehicles.

If you look at heavy-duty vehicles, diesel truck emissions—and I think a lot of us commute on the 400-series highways—it's devastating. The cost of the damage that diesel does is almost 80 cents per mile travelled. It's 30% more than the vehicle fuel cost. These are health cost damages.

Ambient CO increases heart failure and deaths, accounting for almost 6% of heart failure in major cities, North America-wide. Emissions such as benzene and nitrous oxide have shown a six times increase in childhood cancers in households adjacent to heavy traffic. That relates directly to roads that have in excess of 20,000 cars per day, which is pretty typical in a major city like Toronto.

1110

Why would anybody want to use natural gas as a vehicle fuel anyway? It's supposed to be a household fuel. That's what some people think. But it is abundant,

safe, clean and economical. We have a tremendous resource. A lot of people have been concerned about the price of natural gas going up, but we actually have about 110 years' supply on hand; that's if we had 20% of the fleet in Canada operating on natural gas, and we have about 2%. So we have a huge supply.

Why is it safe? It's lighter than air, it has a higher ignition point than gasoline or propane, and a narrower flammability range. It has a near-perfect safety record. It's odourized, so that any leak is easily detected. The cylinder safety is second to none. The cylinders are constructed of steel and aluminum, and they're reinforced with carbon or glass fibre wrappings.

The refuelling is quick. It has an automatic shutoff. It's self-serve. It has a sealed refuelling system, so there are no evaporative emissions whatsoever. The factory-built natural gas vehicles by the original equipment manufacturers are crash tested, and they have factory-prepped engines. I think it's important to separate factory-built vehicles from a lot of aftermarket vehicles out there that don't reach the credibility level from an emissions standpoint.

It has huge environmental advantages. It has up to 98% less harmful emissions: that's carbon monoxide; greenhouse gas reduction by at least 20%. It eliminates evaporative emissions; near-zero particulate matter. It eliminates transport spills. It's non-toxic. There's no soil pollution. ULEVs and SULEVs are ultra-low-emission and super-ultra-low-emission vehicles. They're almost zero-emission vehicles. If you look at the second-bottom one, most of the dedicated natural gas vehicles are super-ultra-low-emission vehicles, overall producing 92% less emissions than typical gasoline vehicles. The only zero-emission vehicle would be an electric vehicle, but that's only measured in tailpipe emissions, so it's not a true zero-emission vehicle.

The natural gas vehicle solution is that it is the fuel choice of the long-term transition to a more sustainable future. A lot of people think we can move to the hydrogen fuel cell as the ultimate decision, but if you don't have a transition fuel that deals with high pressure and the same kinds of issues that we're dealing with with natural gas, we'll never get to the hydrogen fuel cell level. They do offer distinct advantages over conventionally powered vehicles, as we talked about: reduced pollution; reduced health care costs; net job creation; increased Ontario GDP; and after 9-11 in particular, reduced reliance on a foreign oil supply. Lots of cities in Canada and the US are using natural gas vehicles now to improve their air quality. But they're not mandated to be natural gas. They're just the cleanest vehicles of choice in Toronto, Hamilton, Burlington, Vancouver, and lots of cities in the US.

We feel like we have a role to fulfill here. We actually have established a partnership with Ford Motor Company to promote the use of their alternate fuel vehicles. We have a multi-million dollar, multi-year contract to support labour, marketing and infrastructure development in Ontario. Obviously, our focus is here. Westport Innova-

tions is a part owner of our company. They're a BC-based technology developer. They have developed a direct high-pressure injection system, so that the diesel kind of engine can operate on cleaner burning natural gas. We have an aligned marketing focus on heavy-duty transit, refuse and interstate trucking. So there's a lot of money in our industry.

What we're looking for is some government support. We think the government should be active in reducing the impact of poor air quality caused by vehicle emissions. We also think you should recognize the impact of improved air quality, and the proven cost-effectiveness of natural-gas-powered vehicles. Other technologies are coming, but they're not anywhere near being marketable. Natural gas products are affordable and proven to be clean. How could you do that? You could update today's existing government support; support existing stakeholders who have invested heavily in the Ontario market. That includes the auto manufacturers, station infrastructure people like us, and the utilities, who have all built millions and millions of dollars worth of infrastructure. We need assistance to get the general public more informed and more motivated to buy a clean-burning vehicle. It's kind of like the blue box program. If people don't participate and put in a little extra effort, it'll never work. We think you should implement supportive legislation and regulations, and look at other leaders in the air quality improvement area, so that we don't have to waste time and money on duplicate studies. It also creates a lead-by-example role for the government.

There is existing legislation in place. There's a current provincial sales tax rebate of \$1,000 per natural gas vehicle sold. There's a market development incentive plan, which is actually money from the gas producers, that runs out this year: \$2,000 and \$3,000, respectively, for different classes of vehicles. There's a full provincial sales tax rebate for transit buses. And there's a fairly weak federal fleet policy that hasn't really been implemented very well; there are too many holes in it.

But we think there's an opportunity, particularly along the 400-series highways, where the cities would willingly participate in air quality strategies if they were supported by the government. We also think that specific vehicle types should be targeted to reduce emissions drastically. This isn't for everybody. It has to be targeted fleets such as vehicles that consume large quantities of fuel and emit the most emissions.

Government support could come from penalties on vehicles that don't conform, or funding could come from vehicle licensing fees. The government would be seen as taking an active role in preserving community and health and economics.

So we have some things that we think would make sense for the Ontario government to do. We think that if you lift the current \$1,000 PST maximum—that was actually implemented, I think, back when cars cost about \$10,000 or \$12,000, and it was a full PST rebate in those days. But since vehicle prices have risen to \$30,000 and \$40,000, it doesn't go very far. I think it's 10 or 15 years since that's been updated.



We think the PST rebate should be extended from light-duty to include heavy-duty vehicles, refuse trucks and school buses. Those are the ones that are emitting the most damaging emissions. And introduce some kind of a bus and refuse truck procurement policy that supports only clean vehicles. I know municipalities are always looking for funding to support their transit systems and their refuse systems and things that aren't covered by local costs, but I think it should have a green tinge to it.

Clean-vehicle operators should be rewarded somehow—I don't know whether it could be tax credits or operating in the HOV lanes—with some kind of recognition for being the good citizens, that they're leading by example by doing that.

There are some significant leaders. South Coast Air Quality Management District in California has adopted a bunch of rules around specific vehicle types. Maybe in Ontario we could start with some of the most effective ones: maybe transit fleets or refuse fleets or airport fleets. I have copies of all these rules. The wheel doesn't have to be reinvented to address some of these issues.

There's a huge infrastructure already in Ontario. A lot of people say there aren't enough stations; there are 65 public stations in existence. In the greater Toronto area there are many, many fuelling stations. But for those who think there aren't enough, that's what our company does. We take away that barrier by building the stations that are needed.

All of the Big Three North American auto manufacturers have factory-built natural gas vehicles that run solely on natural gas and reach super-ultra-low-emission standards. There are actually 35, I think now, original equipment vehicle and engine manufacturers building natural gas vehicles. They're not doing that because they like natural gas; they're doing that because they meet emission standards and are marketable today. But we need to get that message clearly to the end user.

So the benefits to Ontario are cleaner air; fewer smog days; a step toward Kyoto compliance; attracting and spending marketing dollars from the US and Canada, which is certainly needed; supporting the production of environmentally friendly vehicles already being manufactured in Ontario—one of the natural gas trucks is manufactured in Oakville, at least for a couple more years, and the natural gas Crown Victoria is manufactured in St Thomas. So there's a lot of Ontario employment that hinges on this business.

Thank you very much for your time, and I welcome any questions or comments.

**The Chair:** We have about a minute and a half per caucus, beginning with the government side.

**Mr Hastings:** Yesterday, sir, we had a presenter who contended that natural gas does not essentially reduce pollutants in the air and that gas itself, what we have, is better. Now, I've seen material, both sides, that—

**Mr Cameron:** I'm going to speculate a little bit and suggest that that was probably coming from the article that appeared in the Globe yesterday. I was surprised to see that Globe; it looked like something that should have

been in the National Enquirer. That's my opinion. I can't believe that the Globe printed an article like that. It's not documented with any backup information. They're talking about 1995 aftermarket vehicle technology. They're talking about a technology issue; it's not a gas issue.

Natural gas is the simplest makeup; it's 95% methane. If natural gas is treated with the same emission technology as gasoline, propane or diesel, natural gas will always be the cleanest, because it's the simplest makeup. You can't change its inherent values. Propane is actually a by-product, sort of the waste, when natural gas is produced, and it's full of lots of toxins that aren't in natural gas.

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**Mr Hastings:** Surely you're not surprised at that kind of an article? The journalism world doesn't have many people trained in science issues to start with.

**Mr Cameron:** I'm not surprised at all. I think any reference to emissions needs to be documented by legitimate sources like Transport Canada or the Environmental Protection Agency. Those are the only approved emission reduction sources that have any value.

**Mrs Bountrogianni:** I'd just like to continue in that vein, because we were surprised as well yesterday and we've asked our ministers to look into that. But they did cite the Drive Clean program, as did the Globe and Mail article. What is your response to the Drive Clean program's results, which indeed show that slightly more natural gas costs didn't pass—

**Mr Cameron:** I think the reason for that, and I can document this information if you'd like me to, is that the natural gas vehicles that were tested, in fact most of the natural gas vehicles that are on the road today, are the result of an after-market conversion. That's like taking any of our gasoline-powered vehicles, taking apart the computer, taking apart the wiring, trying to make it run on another fuel and wondering why it's hard to start and wondering why it doesn't pass a Drive Clean emission test. Those are not factory-produced vehicles. Somebody has been rummaging around with the emission system the manufacturer produced and has then taken it to a Drive Clean to see if it would pass. It doesn't make any sense. Once again, that's a technology they're throwing into the equation that isn't applicable.

Natural gas factory vehicles are certified by the Canadian and American governments to meet and maintain emission standards for seven years. They have to comply to that. Any vehicle will go out of tune if it's not maintained, whether it's gasoline, diesel or propane. But I go back to the same thing. If they're all using the same technology, natural gas will always be the cleanest because it's inherently the cleanest fuel. So my message again there is that they're comparing old technology on a converted vehicle, not a factory-produced vehicle. We do not support after-market conversions. They don't meet emission standards; the OAM vehicles do. That's where all the money is spent, and that's where the value is.

**Ms Churley:** Further to the turn in this conversation because of this article, the Toronto Transit Commission

is saying the same thing, that they were experimenting with it and they're not going to pursue that. So a huge amount of damage has been done as a result of this without the other side.

**Mr Cameron:** I agree. The Toronto Transit Commission has actually said in their own internal report for at least two back-to-back years that their natural gas transit bus fleet is actually less expensive to run than their diesel bus fleet. That's in their own internal report. That's on a cost-per-kilometre basis.

**Ms Churley:** So I guess you'll be dealing with the Globe and trying to get the other side printed.

**Mr Cameron:** Yes.

**Ms Churley:** But just in terms of where your company is going with the newer vehicles, is it taking off? Are there others starting pilot programs and things like that with the newer vehicles?

**Mr Cameron:** Let me back up just one second on the Toronto Transit Commission. I just want to make a comment there. The buses that they have are prototypes. They weren't full production vehicles when they were put on the street. They're still operating. In fact, some of them are the most reliable buses in their fleet.

**Ms Churley:** Is that right?

**Mr Cameron:** Yes. If you talk to staff, they'll—it's in their own report. There's a lot of conflicting information that gets out there.

As far as prototypes are concerned, these are not prototype vehicles. These are full production vehicles. They're manufactured by GM, Ford and Chrysler. They exceed all of the emission standards by many years over gasoline. They have millions and millions of miles on them. The reason that there aren't more of these vehicles on the road is that people are constantly being misled by what I refer to as the conversion technology business versus the original equipment manufactured vehicles.

The other thing is sort of the chicken and egg. People say there aren't enough stations. That's our role. Our role is to build infrastructure, but we can only do that in specific areas. We can't go and build 100 stations and hope somebody comes.

**Ms Churley:** In summary, because I know we have to wrap up, could I just quickly clarify that you're making the distinction between the converted vehicles and the new vehicles that are designed to burn natural gas?

**Mr Cameron:** Absolutely, yes.

**The Chair:** Thank you. We really appreciate your presentation and your coming forward.

#### ENERGY WORLD WIDE INC

**The Chair:** We move on to our next presenter, Energy World Wide Inc, Mr Drucker, CEO.

**Mr Ernest Drucker:** Good morning, ladies and gentlemen.

**The Chair:** Good morning. For the record, please state your name so that Hansard gets it accurately.

**Mr Drucker:** Drucker.

**The Chair:** You have 20 minutes. Anything left over will be divided among the three caucuses.

**Mr Drucker:** I represent Energy World Wide.

To Mr Doug Galt's, MPP, Chair of the select committee on alternative fuel sources, and all the members' attention: the secretary is going to distribute a memo which includes quite a lot of information. Also, we have presented an additional one and a copy of the world patent which we received just last week.

If I may start with my presentation, our company was formed about 10 years ago. It utilizes mostly warm air, which it converts into wind. Now, as we all know, warm air rises. When the tower in which it's converted is high enough, the wind into which it is being converted reaches a velocity which doubles each 100 metres. So, for instance, if you have a velocity starting at 10 or 15 kilometres an hour at the bottom, by the time it reaches 400 metres high, it will be about 60 to 70 kilometres per hour.

The problem today was still, how do we generate sufficient warm air in order to be able to produce sufficient velocity and a sufficient amount of air which would turn a turbine? We have produced for the first time a warm-air module; you have a copy of it in our submission. A warm-air module produces on average about 3,700 cubic metres. We only have to warm the air in the module by six or seven degrees in order to have this warm-air module go up.

The warm-air module in our new technology is located around the tower, which has a diameter of about 25 metres. You have all that in the schedule. Around it we have between 30 and 32 such warm-air modules. Every one and a half or two minutes, depending on the temperature, the air from these warm-air modules is being let into the tower. Before it reaches the turbine, it goes through a venturi. I don't know if many of you know what a venturi is. A venturi is a system which increases the speed of the air by reducing the amount of the circumference. By the time the 7,000 or 8,000 cubic metres from two of the warm-air modules reach the turbine, the velocity has been increased from zero to about 15 to 20 kilometres per hour.

The design of the turbine by our technology department has been specific. We found, to our regret, that nobody in Canada or the United States can build a turbine which we have designed. The only country which could build the turbine is Germany, and we have received a quotation from Germany for our design.

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Our design is specific since it includes a carbon plastic and specially designed zircon steel. The carbon plastic and the zircon steel enable us to generate electricity even from only 20 kilometres per hour, but it can go up to 175 kilometres per hour. Then, from that turbine it goes through the tower, which in our proposal is 400 metres high, and when it comes to the top, of course, as I mentioned before, the velocity has generated three or four times every 100 metres. Thus, the increased velocity pulls the turbine to about an average of 100 kilometres per hour. We have not only made the calculation; we



have produced experiments. Each experiment was verified by three engineers. One of the major helps for this was a chief of aerodynamic industries who is on Dufferin Street, Mr Grossman. We found many other things which I won't talk about.

The 100- to 110-kilometres-per-hour speed generates within 24 hours anywhere between 40 megawatts to 70 megawatts. According to calculations provided to us by Ontario Hydro, whose part of energy is being generated by water, one megawatt of cost, for instance, from water is judged today at \$1.5 million. That means the cost of our plant only with one tower, which will generate between 35 megawatts to 50 megawatts, depending on the location of the tower, because we have in Canada areas which are very windy, like the Gaspé, where the speed would be higher by the outside air. But let's say an average thing like we have in Toronto or in Kingston or around the lake would be between 70 kilometres and 100 kilometres per hour. This 100 kilometres per hour would generate about 70 megawatts to 100 megawatts. By the calculation of Ontario Hydro, this would be worth between \$70 million to \$100 million.

We have been in touch with the Ministry of Natural Resources, asking them to approve for us the issue of flow-through shares so we can construct a pilot plant made of two towers. Until last week we were told by the Ministry of Natural Resources that unfortunately they have no guidelines for our technology. They have only guidelines for windmills. But they were intrigued by the technology we submitted to them in detail and they were in touch, as a matter of fact a couple of days ago, with the Ministry of Finance, the science council of the Ministry of Finance, and they decided with our assistance to develop guidelines which then will be guidelines for our technology, so we can get the necessary funding to issue flow-through shares. It all happened only last week so it's not included in this design.

The complete details of our technology I left in a book like this for your reference. In my little thing, I'm highlighting the major amounts under the process description, which tells you exactly how the technology works starting from the bottom to the top, and also the technology and the experiments we did.

We have done something else. It appears to us, from reports in the press and from known determinants, that the present utilities, which are mostly producing electricity generated by firing coal, are the top 15 polluters in Canada. You have a list, on that page here which I included.

Ours is the first technology which uses only warm air and speed. It's completely clean—no gas, no hot water, no atomic energy; just warm air and speed. We are the first in the world. As soon as the world patent was approved last week—you have a copy in here—we had not less than six questions, from the United States, from the German government, from Brazil, and from two other governments. If you are willing to consider a joint venture for the generation of electricity, we reply to everybody very politely, "Yes, we are willing, but first

we have to build a pilot plant to take out all the bugs which are normal in new technology."

Although we have spent, to date, over \$280,000 of our own money to conduct the experiments and to arrive at the technologies we have now, and we have secured an option on land in Napanee that has the right zoning, where we can go up to 400 metres high, we are now waiting to receive a call from the Ministry of Finance so we can, together with them, create a list of technologies which will be then approved by the government so we can get the issue of the flow-through shares.

If you have any questions, ladies and gentlemen, I'll be quite willing to answer. It's not that easy a technology. We've worked on it for the last 10 years—various experiments, always with at least three engineers witnessing our experiments. It was only about six months ago that we arrived at the stage where we can say, "Yes, it is feasible, it works, and it is unique." Thank you very much.

**The Chair:** Thank you very much. We have about two minutes left for each of the caucuses to ask questions.

**Mrs Bountrogianni:** Thank you very much—a very interesting presentation and concept. I'm assuming, then, that this has not been applied anywhere yet? No.

**Mr Drucker:** Not yet anywhere, because our technology is first in the world. All we've got is the world patent, the first one in the whole world.

**Mrs Bountrogianni:** OK. My second question, sir: are you presently attached to a research institution or a university—I do see some references of your publications—or was this in your past?

**Mr Drucker:** No. Our company has six people working at the moment. One is a mechanical engineer, here with me, Mr Adam Switzky. We have an economist, we have an accountant, and we have another engineer who is not here. I have only three diplomas, which unfortunately do not include electricity, but I learned electricity on the side. However, most of the technology has been developed by our people. We asked for assistance and we asked for a university, and they said, "We don't know if it's going to work. After it's going to work, approach us." So we didn't approach anybody yet. Now that we have the world patent, now that we can prove that it works, everybody is arguably after us.

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**Mrs Bountrogianni:** I think some PhD students lost some opportunities here. Thank you for an excellent presentation.

**Ms Churley:** I just want to clarify: I believe your presentation has now been updated. You say here that because of the lengthy process that would be involved with the science council, you would have to accept the invitation by the German government to build a suitable pilot in Germany. But now, since you gave us this—

**Mr Drucker:** Which page are you on?

**Ms Churley:** I'm on page 3, point 6, where you talk about the fact you mentioned that there were no rules around this. You mentioned in your presentation that it

would take so long to get relevant guidelines established by the science council that you would have to go ahead and do the pilot in Germany.

**Mr Drucker:** If we don't get it. But in the meantime, last week, before this was printed, the Ministry of Finance phoned us.

**Ms Churley:** So, it looks like now you will be able to do your pilot here in Canada.

**Mr Drucker:** Yes, I hope so.

**Ms Churley:** But failing that—and this is what I want to clarify—you do have a firm invitation from the German government to do this.

**Mr Drucker:** Yes, we do. The German government has written us a letter. They have 20 atomic reactors that they have to put to sleep within 10 years, and our technology is the only one they would accept in doing that.

**Ms Churley:** What do they have?

**Mr Drucker:** Twenty atomic reactors that they want to put to sleep.

**Ms Churley:** I see. And they look at your technology as a way to help them do that.

**Mr Drucker:** Our technology is the only one.

**Ms Churley:** Interesting. Thank you very much.

**Mr Jerry J. Ouellette (Oshawa):** Can you not use current infrastructure that might be available, such as abandoned smoke stacks or something along those lines?

**Mr Drucker:** No.

**Mr Ouellette:** Can't they be modified at all in order to decrease costs?

**Mr Drucker:** No, they can't be modified, because our high towers also include software which we developed in connection with our technology. The software will be operated by two computer people. They open and close, and they take the temperature every 10 metres. There is a circular or slower turbine—if the turbine goes over 130 kilometres per hour, it would collapse or disintegrate. All that is controlled by the software. I didn't mention that here, but we have developed complete software with Quantech Electrical, one of the major electrical and software companies in Toronto. We also obtained a complete estimate of costs by one of the major companies, Eastern Construction Co Ltd, that we worked with before in Toronto. We have the complete cost of the elevators, of most of the things that we need.

For instance, our warm-air module has to be calculated, and we had to go four times until we got it right. One warm-air module is almost three times as high as a normal house. It generates the sunlight. In addition to that, we have sun mirrors. So when the sun comes from the east, we have mirrors in the west, putting it on the west view of the copy of the mirrors—it's in your schedule. There are many more. I've left the reference here for whoever is interested.

Our technology is not only working to produce electricity. For instance, as we went along we were able to produce a system whereby we can almost eliminate forest fires. We can also eliminate landfills, which are terrible. Landfills are the worst thing that can happen. When you

pass by a landfill, you don't see it but you smell it. The worst comes when it rains or when it snows. The water that comes through the landfill is worse than the air we breathe, because all that goes down and comes to our lakes and rivers and produces terrible disfigurement of fish and all the other things.

**The Chair:** Thank you very much. We're out of time. We really appreciate you coming forward and presenting a different technology to the committee.

**Mr Drucker:** Thank you for seeing me.

**Mr O'Toole:** May I just ask a question? Sir, are you related to Peter Drucker?

**Mr Drucker:** Yes, indirectly.

**Mr O'Toole:** He's a renowned expert, that's all.

**Mr Drucker:** I just want to tell you: Peter Drucker comes from parents who were in Germany. The Drucker family as such comes from Holland and is called Drucker because they assisted Gutenberg in his printing of the first book. In Dutch and in German, "drucker" means "printer," and that's how it happened. My grandfather and the father of Peter Drucker were brothers.

#### BRUCE ECOLOGY CENTRE LTD

**The Chair:** We'll now call on Gary Gurbini of Bruce Ecology Centre Ltd. Thanks very much for coming forward. If you both don't mind, state your names for the sake of Hansard so we can get them accurately.

**Dr Gary Gurbini:** Thank you very much, Mr Chairman. I'm very pleased to be able to come forward to the committee today with my colleague on behalf of Bruce Ecology, which is an Ontario company. I'm Gary Gurbini, a director, and Mr Sam MacGregor is our president. We're a company that has some roots historically in energy in a number of ways. Indeed this company has historical roots.

I'd like to divide my presentation to you today into three parts: a brief introduction; secondly, a tape that I would like to ask the committee's indulgence with; and thirdly, some comments to finish.

I think people have copies. I apologize for not having enough copies. I'm used to these meetings not having very many members, so I actually have to commend everyone on their attendance; it's pretty impressive.

Bruce Ecology Centre Ltd is a privately held Ontario corporation whose interests are in the commercial application of energy strategies and technologies that are environmentally superior and sustainable. Methanol, produced in an environmentally beneficial way from Ontario technology, is one of our main interests.

The history of our interest is steeped in activities that have embraced several decades of provincial and federal efforts to effectively manage energy challenges. Specifically, these include Energy Alternatives, which was commissioned by the federal government in 1980; changes to the Ontario Power Corporation Act in the mid-1980s, in keeping with some of our comments later; and Hydrogen, a National Mission, which was commissioned by the federal government in 1984.



BECL would like to commend the chair and the members of the committee on alternative fuel sources on their efforts to date and the practical nature of the questions they pose on behalf of Ontarians.

At the same time, there seems to be the risk we all run of producing a sort of déjà-vu-all-over-again set of circumstances in a populist report while we struggle to put clarity to terms like "green energy," "alternative energy" and "sustainable development," and our opportunities just keep going by while we're struggling with these. There seems, at the same time, to be many opportunities that are out there for us still to capture, and I hope we can reflect on these with you today.

I would now appreciate the committee's indulgence in viewing a videotape produced by the Methanol Institute in Washington, DC. This December 2001 release takes us very quickly through much of what I hope to communicate today, and then we'll follow with explanations and comments that I hope the committee may find useful.

#### *Video presentation.*

**Dr Gurbin:** The messages that I hope have been carried to the committee by this videotape are really two. The first is that methanol simply is a liquid carrier of hydrogen, and that's key. We now have a form—pretty well described on that tape, I think—of carrying hydrogen if we can produce it.

Secondly, the single carbon atom in methanol, which is the same as the single carbon atom in your natural gas, is arguably the least likely of any carbon fuel to do harm to our environment.

I'm happy to leave this tape with the committee to do with as they choose. There are certainly others available from the Methanol Institute.

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To complete the presentation, I would like to carry to the committee two other primary messages: the first is that the electricity system in Ontario, particularly in its deregulated form, represents many exciting opportunities for Ontario to achieve its transportation energy needs; and secondly, that hydrogen produced from existing Ontario electricity and technology can be used as a basis to produce a synthetic methanol, with enormous environmental and economic benefits to Ontarians.

BECL sincerely believes that consideration of the above premise is very consistent with the broad objectives that it has established for a future policy framework. While making specific comments on specific questions, we will limit ourselves to those areas we feel are most appropriate to our experience and our interests.

Our Ontario energy needs have been met historically by a system of generation, transmission and uses that has evolved, very often, with limited accountability for our activities. One of the few examples of full cost accounting today and over time is in real estate. The drive for our environmental improvement is really health-driven, with a growing appreciation for our clean air, clean water and clean soil. A translation of this to real costs, whether it is E coli, smog or the consequences of flood and severe storm with climate instabilities, is ultimately a conse-

quence of our polluting activities, many of which are energy-driven. Smog in Ontario is responsible for \$1 billion of additional direct health costs per year, perhaps as much as another \$9 billion in secondary costs. Carbon credits reflecting CO<sub>2</sub> emissions are on their way to impacting our energy production and use.

The electricity system: energy systems, specifically Ontario's electricity system, from generation to transforming into transportation fuel, can mitigate not only the environmental impacts, but also economic consequences. Canada at present is disadvantaged in the world of carbon trading because of the current relatively limited dependence we have on fossil fuel generation of electricity. So we have a problem, a problem that's not well recognized at the present time.

The production of hydrogen from Ontario's electricity system has a unique historical footnote. In the early 1900s—1905 to be exact—the Stuart cell was the fore-runner of electrolysis, right here in Ontario. A critical decision was made at that time committing us to a path to involve us in the century of electricity and all the competing technologies, like light bulbs, streetcars, telephones and now e-mail, which keep driving electricity's extended use.

Hydrogen use in this century will similarly be technology-driven. The world will not run solely on hydrogen, but a combination of electricity and hydrogen technologies took us to the moon. The efficiencies that are already available from new and distributed electricity generation should lead us away from electricity produced by traditional higher-carbon sources.

Hydrogen production: the beauty of hydrogen production is in its compatibility with the present and any future electricity and energy system in Ontario. Intrinsically, the electrolysis units are capable of being started and stopped in a moment to ensure system integrity and economy. Hydrogen can also be produced at the generation site in a set of very economically attractive ways.

The issue today is how to utilize the hydrogen and continue to accrue the environmental benefit without losing the economies. The infrastructure is not yet here. Methanol is a carbon and oxygen molecule with four hydrogen atoms. If you produce methanol from the traditional processes, there is a significant environmental cost. Fuel cells convert hydrogen to electricity. Methanol produced from hydrogen and oxygen from Ontario's electricity system through electrolysis and the carbon from carbon dioxide can fuel fuel cells.

Our recommendations include, first of all, a strategy: to recognize the Ontario energy system as an electricity distribution system positioned well to underpin an evolution of cleaner generation and end-use technologies utilizing increased electricity and hydrogen. Public policy can be affected through this system to encourage generating activity and end-use technologies and practices with the least environmental consequences, ensuring future generations can live even better. The existing infrastructure, technological and industrial base can be harnessed to meet Ontario's needs and provide world leadership in environmental protection. The application

of general principles represented by incorporating some of the following comments can be helpful in effectively implementing this strategy.

**Full cost accounting:** this important consideration is strongly supported as a means of levelling the playing field, with particular reference to carbon credits and trading, as well as the definition of "green." The traditional "renewable" labels are already vulnerable, as forests, fish and fresh water are under pressure. No single defined source should necessarily receive preferential consideration.

**The process:** a secretariat headed by the Ministry of Energy, Science and Technology should take responsibility for implementing the strategy. It should access existing programs for basic research; direct an energy centre for excellence dedicated to transportation fuels; and, finally, direct funds to appropriate demonstration projects with commercial applications in energy.

**Fuel cells:** fuel cell technology is integral to the energy strategy and can be compared in importance to this century to the microchip in the last century. Both have electricity flow as a common denominator. A fuel cell policy should be a first order of action, with funding, specific alliances and projects initiated as quickly as possible.

**The Ontario Energy Board:** Ontario's Electricity Act of 1998 has given the Ontario Energy Board a mandate to implement public policy. This would be as defined by the strategy outline.

**Ontario Power Generation Inc:** it seems imprudent to us to direct Ontario Power Generation Inc except as government policy generally will affect any generating activity and through the Ontario Energy Board, together with the independent market operator, especially to ensure system integrity and applications for the use of off-peak electricity generation capacity. We say this because Ontario Power Generation Inc has been changed from a crown corporation to a business supposedly operating under the Business Corporations Act now. Secondly, management practices and the evolution of business practices at the old Ontario Hydro are still a major question reflecting the monopoly position of the old Ontario Hydro.

Finally, several specific proposals, first on biogas. Atmospheric methane levels and nutrient management practices are public issues of major importance. Ontario could be well served by investigation and intervention.

ITER represents to us an opportunity for Canada and Ontario to rebuild credibility and a valuable position in the nuclear renaissance which is now underway.

I thank the committee for its indulgence and would certainly welcome any questions.

**The Chair:** Unfortunately, we are up to 21 minutes and we've run out of time. Thanks very much for your presentation. We appreciate your coming forward.

#### UNARIUS CANADA

**The Chair:** Our next presenter is Unarius Canada, Clifford Holland, if you would come forward. If you

have someone else with you for presentation, they can come forward as well. You have 20 minutes in total. After your presentation, if there's anything left of the 20 minutes, it will be divided for questions among the three caucuses. If for the sake of Hansard both of you would state your names clearly so they can get it recorded.

**Mr Clifford Holland:** My name is Clifford Holland.

**Mrs Shirley Holland:** My name is Shirley Holland.

**Mr Holland:** Nikola Tesla is the man who invented the 20th century. He's the man who gave us the alternating current. When he did so, he also was working on another energy system. When the people found out what he was working on, they decided to pull the financing because they were making so much money on the alternating current, so the tower that Nikola Tesla was building was left to ruin. But the work didn't stop there.

We have presented before you, and I hope you have them in hand, dissertations from Nikola Tesla and from the greatest scientists who have ever lived, including Oppenheimer, who gave us the atomic bomb.

Oppenheimer held back the secrets of atomic energy for a number of years before he was finally coerced into divulging what he had been working on. He now feels there is a tremendous danger. Atomic energy, as it is currently in use—by bombarding the atom with high frequencies, it releases the isotope, which is the fourth-dimensional counterpart of the atom, into the third dimension. That causes malformations, it causes disease, it causes all kinds of problems, and it's going to get worse. So he has a grave concern which he has enumerated here.

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The suggestion is that, first of all, there has to be a recognition that there is a better system, a far better system, than atomic energy. Instead of bombarding the atom with high frequencies, what you do is raise the frequencies to a higher level and draw down the power from the isotope. The isotope is the fourth-dimensional counterpart of the atom. If you reach the isotope, what happens is that you tap into the vortex of the energy that's flowing into the isotope. When you tune into that vortex, you have an unlimited source of energy and you don't have any pollution; you have no problems with it whatsoever. Once it is set up, it runs continuously, with no maintenance, forever. It produces enough power for the entire world, not just for a local area.

The offshoots of this particular system are staggering. It provides a method whereby transportation systems would go through a complete revolution. For those who are traversing the land, they would again have unlimited power.

When this energy was being experimented with by Tesla, Edison and Henry Ford attempted to install it in automobiles. Unfortunately they didn't have the technology to complete the work. But it is possible to install it in an automobile, and it would be perhaps the size of a small radio. It would give you all the power to run the automobile, because it would be harmonically attuned to the tower itself.



The tower also produces a hollow beam. In the hollow beam that it produces, any aircraft would sit in the middle of this hollow beam and they would control the beam from the aircraft. So as they shoot the energy or the instructions back to the hollow beam, it swings through the sky like a flashlight. You can imagine the tremendous speeds that can be attained with that kind of technology.

It will allow individuals to produce entirely new chemicals, new elements, far beyond the 101 elements that are currently in existence. With the new elements, they will be able to produce a compound which will be soft to the touch, but it will be translucent. It will look similar to a crystal. It will be used to build homes. The actual walls and ceilings of the homes will be harmonically attuned to the tower, and through the process of hysteresis, as this energy is incepted, you would have two dials perhaps, one that you turn would control the warmth in the house or the cooling; the other one would change the colour of the walls to any colour you wish, depending on what you want to express.

The details for building this tower are enclosed in here. I've extracted this from 100 volumes of books, so it is not just what's in here. It's very, very detailed. What's being brought to your attention at this moment are collectively the greatest scientists who have ever lived. As you read this material, it is irrefutable. It is going to happen. There is no way in the world that it is not going to happen, but it's a matter of who is going to take the lead. Hopefully, we would do this in Canada.

The tower provides other resources: (1) it has no pollution whatsoever; (2) by virtue of developing this system, you will establish the base playing frequency of every single pollutant that's in existence. Because you have the base playing frequency and because you're dealing with high frequencies, you can radiate any pollutant you wish with these high frequencies and put them out of phase. You will cancel them out, so you eliminate pollution in its entirety.

The equipment also is harmonically attuned to healing equipment. The healing equipment would be capable of inspecting the supporting structure of the atoms of the physical body. All disease, irrespective of what that disease is, originates in the supporting structure of the atoms, which normally is not known to exist, but it comes in in vortexual patterns. The intelligence of the atoms of the physical body, as is true with all atomic structures, comes in that vortex.

Now, cancer, for example, is explained in great detail in this. Cancer is caused by a malformation in the vortex that's flowing into the atomic structure. This equipment provides the capability of scanning the supporting structure, the high-frequency structure, of the atomic body, and it will pinpoint anything that is out of balance, anything that is incorrect in that supporting structure. Once it has been pinpointed, there is another piece of equipment that's hooked into this, whereby when an individual is taken into another room, they can focus right in on the malformation. When they focus in on it, they are also able to tune in to the mental structure of the individual

and produce a picture of the originating cause of the problem. The moment that the person incepts the originating cause of any problem, it cancels it out, so there is nothing that will not be cancelled out. Disease as you know it will cease to exist. All the malformations of the mind and of the body and everything else are taken care of with this. It may seem a reach, but read the material. It's true. We have worked with these energies for over 30 years, and we know that it's valid. What we have learned to do is to do this with our minds, which is the next step, but right now you can do it with this equipment.

Now, this material could not be brought before the normal person until the year 2001. The reason for that was that we are passing through a line of force from the sun. That line of force that we're passing through is causing all of the weather disturbances that we're running into. It's not caused by pollution at all. Pollution is terrible, but it is not the cause of global warming. Global warming is caused by this transition. As we moved through this line of force or the reciprocal of it 12,000 years ago, there was an ice age that was set in place. As we move 12,000 years into the future, we move from the negative to the positive side of those lines of force. So there has been a very, very slow, gradual warming that's been taking place during this entire transition until we hit the zenith point. At the zenith point, which is now, we then pass through the line of force. The only beauty of this is that we're moving from negative to positive, not from positive to negative as we did before. So at this point, it's appropriate that now that we are pretty well through the transition, this material could be brought to light.

I'd welcome any questions. There's a lot more material, instructions on how to build it. I'd like to reiterate that there is no maintenance for this whatsoever once it's set up. If there are any questions, I'd be happy to discuss it with you.

**The Chair:** Certainly. Thank you very much for the presentation. We have approximately two and a half minutes per caucus.

**Ms Churley:** Thank you very much for your presentation. I'm quite curious about who wrote this document, whose voices are speaking for all these scientists.

**Mr Holland:** It's very difficult to believe, but the man who authored this was their teacher. When you read the material, you'll come to understand exactly who he was. He was a very, very highly evolved scientist and being. His name was Dr Ernest Norman and he is revered.

**The Chair:** Any other questions, Ms Churley?

**Ms Churley:** No.

**The Chair:** The government side?

**Mr Hastings:** Is Tesla taught in physics today, do you know? Is Tesla and his ideas taught in our curriculum today?

**Mr Holland:** Are they in here? They're all embedded in this.

**Interjection:** No, in the school curriculum.

**Mr Hastings:** In the school system.

**Mr Holland:** No. Tesla was above—people have attempted for years to try to penetrate the information that Tesla made available. He was the man who built the generating station at Niagara Falls. He offered to build this tower, which would prevent any enemy aircraft from coming into the States because it can automatically repel anything coming toward it. But they pulled the financing, so it wasn't completed.

A lot of people have been trying for many, many years to understand Tesla. It's his words that are in here, and you can read them yourselves.

**Mr Hastings:** What's your best-cost estimation of how much it would take to build one of these towers?

**Mr Holland:** I have no idea. I do know what you would need. You would need, first of all, an administrative staff. You would need a group of nuclear physicists and scientists of different persuasions to come together as one mind to work on this project. I would say that if the people are prepared, apparently—they'd be prepared mentally in order to incept this information. It's a matter of putting the word out and letting it happen. And I think you would find that they would just come out of everywhere, that the people would respond to this, especially once they've read the material. These people are very, very well known.

See, right now it is generally believed that light is caused by the interaction between magnetism and electricity. Where the two come together at a nodal point, it creates light. But what they're informing us here is that's not true. What happens is that at those points where they come together, you have to have a third factor, and that third factor is a fourth-dimensional energy pattern, a vortex, that strikes the nodal points, and when it strikes the nodal points, that's your light. But they're saying if you want this kind of power, you have to get up to the frequencies where you bypass that particular point where it produces light, and you actually tap into the nodal point at the higher level. When you tap into that point at the higher level, you're into the isotope, or the demodulation point, from the fourth to the third dimension.

**The Chair:** Dr Bountrogianni?

**Mrs Bountrogianni:** I don't have any questions. Thank you for your presentation.

**The Chair:** In the extra time, anything? No.

OK. Thank you very much for your presentation. Intriguing information that you brought to light for us.

**Mr Holland:** I hope you take it seriously, I really do, because I couldn't be more serious. I've spent a lifetime studying this and I know that it's valid, totally.

**The Chair:** Thank you.

**Mr Holland:** Thank you very much for the opportunity to speak to you.

**The Chair:** Our clerk would like to check with committee members in connection with travel. Tomorrow's travel to Ottawa is in order. I believe there shouldn't be any complications there. The other one has to do with the price for travel next week, a significant difference if people are committed ahead of time.

Is that basically what you were looking for?

**Clerk of the Committee (Ms Tonia Grannum):** No. I need to know what people are doing so I can actually book tickets for the out-west trip. I can talk to people separately, but we need to book tomorrow.

**Mr Gilchrist:** Over the lunch hour is much easier.

**The Chair:** I think there's some flexibility in the committee. There was some desire to travel as a unit, but not absolutely necessary. Maybe there can be some private discussions, and we'll take it up at 4 o'clock as we move to adjournment prior to moving to Ottawa?

Hearing nothing further, the committee now stands recessed until 2 o'clock.

*The committee recessed from 1224 to 1400.*

#### ASSOCIATED TORONTO TAXICAB CO-OPERATIVE

**The Chair:** We will call to order the select committee on alternative fuels for the afternoon session. Starting at 2 o'clock, we have Co-Op taxis, and it's Peter Zahakos, operations manager. Would you please come forward. As you start, just restate your name for the sake of Hansard. You have 20 minutes in total. What you don't use in presentation will be divided among the three caucuses for questions and statements.

**Mr Peter Zahakos:** I hope you have lots of questions because I can give you many answers, on natural gas, anyway.

**The Chair:** For your interest—and you may have been following—we had a presentation yesterday from a concerned taxi person and then again today we had some people from natural gas speaking about it. So we look forward to your comments.

**Mr Zahakos:** I want to take the opportunity to thank the members of the select committee on alternative fuels for allowing me to make a presentation to you today. My name is Peter Zahakos and I'm the general manager of Associated Toronto TaxiCab Co-Operative Ltd, commonly known as Co-Op Cabs, the red-and-yellow cabs in the city of Toronto. I'm here to speak to you today on a very important issue, which is the environment. In the city of Toronto we have serious problems in the summer with smog and pollution. Those are the issues which I thought were very paramount to the people in Toronto.

In about 1998, the city of Toronto went through the reform bylaw concerning taxicabs, and they wanted to get newer cabs, better cabs on the road. At the time, they wrestled with how to get better cabs on the road. The one thing they did was they gave an extension for natural gas cars. If you bought or purchased a natural gas car, you were able to keep the car on the road for two years longer than a normal cab, from five years to seven years.

We have talked to many people about the issues of natural gas, and you see, you have to be practical. You have to look at what's available for the environment. At that time we did some research, and we found that natural gas does not have sulphur in it, for example, so it's a cleaner fuel. We thought that we could do our small bit to help the environment in Toronto. We started by con-



verting some of our older vehicles, the 1997s, and then we started a program of purchasing brand new OEMs. We bought some 1999, 2000 and 2001 vehicles, and we're in the process of buying new vehicles again this year.

We found that the natural gas is a controversial fuel in terms of the use. When you start a new project there are always problems that occur in the beginning. There are always break-in periods. Basically our experience has been, especially with the OEMs, that the vehicles from the factory, which are factory-built natural gas, seem to be all right. There were some minor problems that were well taken care of by Ford. You balance it. It's a Crown Victoria. It's a big, roomy car. It's good for the taxi industry. It's the type of vehicle that's heavy-duty equipped; it's built to be on the road.

The more I started studying about natural gas and the environment, I found out that there's a lot of technology coming for the future. For example, they talk about fuel cells. Maybe it's a good technology—I would hope that it would be—but to get to that level of fuel cells, you have to have some kind of infrastructure. What many people forget is that natural gas and the technology that's being incorporated today for natural gas and the vehicles is providing a bridge to that fuel cell technology. Hopefully in about five or 10 years we would have that being introduced in the city of Toronto.

Basically that's what I wanted to say. We have developed a policy at Co-Op Cabs as being an environmentally friendly company. We wanted to be first off the mark to have a green cab company. We've invested lots of money in buying these vehicles. We also invested some money in becoming a filling station. We have the most recent technology that fills our cabs with natural gas. It's so efficient that nothing leaks out into the environment, or there's no spillover effect on the pollution and that. So we're committed to the policy.

When we started in 1999, the price of natural gas was much cheaper than gasoline and the incentives that were offered to us at the time were appropriate. Basically it made us equal. You could buy a one-year-old vehicle used as a taxi cab on gasoline or you could buy a brand new OEM, and with the existing incentives it came equal.

Today, things have changed; the price of natural gas and the price of gasoline are about the same. So there is not that incentive there any longer in terms of making it more economically viable for the drivers. That's why I would suggest, if you had it in your heart, that a simple thing like eliminating the provincial sales tax on OEM vehicles would maintain the program, would promote the program, and really I don't think would cost the provincial government much money for something as minor as that.

As more and more of these cars are being used, the technology is being improved. For example, in the 2003 model year the tanks are a bit bigger, so you have a greater range, and the more they're being used—it's like what comes first, the chicken or the egg? You get more technology being improved. Hopefully, when we look toward the future, this technology will be the basis for

even better technology in the future to address the environmental concerns. That's it.

**The Chair:** Thanks very much. We have about four minutes per caucus.

**Mrs Bountrogianni:** Thank you and welcome, Mr Zahakos. This has become an issue ever since yesterday for us. There's been a controversy—I'm sure you've heard about it—

**Mr Zahakos:** Oh, yes.

**Mrs Bountrogianni:**—based on the Globe and Mail report, and also one of your colleagues yesterday tried to dispel the efficiency of natural gas in the cabs. Today we had a gentleman who gave an explanation for that discrepancy. I'd like your explanation. Why are there people out there who are saying that the Drive Clean program shows that it's not environmentally better to go with natural gas in cabs?

**Mr Zahakos:** The Drive Clean program studies gasoline emissions and studies the emissions that are coming out of the tailpipe. It doesn't take into consideration the type of fuel. Granted, maybe five years ago when you converted an old car that was burning oil—don't expect, because you're converting to natural gas, to turn it into a brand new car. So the expectations that some people had, saying, "Well, you know, it's burning oil"—it doesn't matter. It shouldn't be on the road anyway.

Further to that, as I said, we started with 1997. These cars have not had vehicle emissions done yet; they're just starting because of the rules for getting the licences renewed. Personally, I've renewed about six licences in the past month—natural gas, 1997s. Four of them passed; one failed the vehicle emission. The reason it failed the vehicle emission is the O<sub>2</sub> sensor, which has nothing to do with the fuel; it has to do with the maintenance. What the vehicle emission testing does is test the maintenance of a vehicle, not the actual fuel. So if you have sloppy maintenance, of course you're going to have a sloppy car regardless of the type of fuel. One of the recommendations I made to the city of Toronto last year was that if you're concerned about that, have a vehicle emission done on a yearly basis in the city of Toronto, and then you will catch these maintenance problems.

Further to that, I renewed our brand new OEM 1999. That passed with no problem, flying colours, the vehicle emission.

All the 2000s that we bought have not reached the point that they have to be tested yet. So in what has been tested so far, you're looking at data that's five or six years old, that is based on really outdated technology that has no bearing on today or the future.

**Mrs Bountrogianni:** That was an explanation, so thank you very much.

**Ms Churley:** Thanks for coming before us today. I see you're actually quoted in this story.

**Mr Zahakos:** Oh, yes. I gave a very good interview.

**Ms Churley:** We got a small piece of that interview, I'll bet.

**Mr Zahakos:** I'm sort of surprised with the Globe and Mail. Usually the Globe and Mail is very balanced and objective. I guess in this case they forgot that.

**Ms Churley:** You ask politicians, any of us from any party, about any of the media and we'll tell you how balanced we think the media are all the time.

Asked whether you'd buy another \$35,000 natural gas car if the city took away the two-year extension, it said your reaction was swift.

**Mr Zahakos:** That's correct. It was very swift.

**Ms Churley:** You said, "No. It wouldn't be economically viable at all. With the two-year extension, what it's done is made it a level playing field."

**Mr Zahakos:** That's correct.

**Ms Churley:** So you stand by that. What you're saying here to us is that in order for this to move forward, incentives need to be put in place to make it viable.

**Mr Zahakos:** Definitely. You've got to remember now, if we compare a brand new OEM that's about \$37,000, natural gas from the factory, to the same vehicle, a 2002 Crown Victoria, on gasoline, you're talking about a \$7,000 to \$8,000 difference.

**Ms Churley:** Right, \$17,000. Wow.

**Mr Zahakos:** It's \$7,000 to \$8,000, just the difference, OK? The price of gasoline today has no bearing, so if I were going to buy one of the two cars and just look at it from an economic point of view, I'd say, "Why spend that extra money?" It is not economically viable. If you have the incentives in there and you make it equal, then you can make a decision and say, "They're both economically viable. Why can't I do the proper environmental thing? Why can't I do what's good for business in the city, have a social conscience and do what's good for the environment?" because they're both economically viable. Then I would choose the environmentally sensitive one.

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**Ms Churley:** Which is why you're asking this committee to recommend some incentive from the provincial government.

**Mr Zahakos:** That's correct.

**Ms Churley:** The other thing I wanted to ask you, then: from the same article, councillor Howard Moscoe, chairman of the subcommittee that deals with cab licensing and also the transit commission, has said that their TTC testing has caused all kinds of problems with buses and things. He seems to be implying that the city of Toronto is going to give up on the natural gas thing. As he put it—he called it a boondoggle—it's collapsing.

From what we heard this morning, from what you're saying, my sense is that there's a bit of throwing the baby out with the bathwater here, that we're talking about almost two different animals here: the converted vehicle, which had a whole host of problems associated with it, and new vehicles that are designed to burn natural gas. Perhaps they're making a mistake. Would that be—

**Mr Zahakos:** I would think they're making a mistake. You used to be on city council and I'm sure—

**Ms Churley:** You've done your homework. Yes, that's right.

**Mr Zahakos:** You probably know how Mr Moscoe is and how he takes positions.

**Ms Churley:** This is all on the record, so I'll be careful here.

**Mr Zahakos:** I'll say this in front of Howard; I don't care. He has something to say. He does not want cars to be on the road more than five years. He really does not like the two-year extension. However, Jack Layton endorsed the extension.

**Ms Churley:** So he has endorsed it?

**Mr Zahakos:** Definitely. Not only that, we also got funding initially from the Toronto Atmospheric Fund to proceed with this.

**Ms Churley:** Which, as you know, I had a hand in establishing.

**Mr Zahakos:** Yes, I know. So if you look at the environmentalists on council, they're for it. They're saying, "Why not?" This exists today—

**Ms Churley:** So I've got to go and beat up Howard Moscoe, in other words.

**Mr Zahakos:** Yes. If you'd like a hand, I'd gladly help you.

**Ms Churley:** That's on the record too.

**Mr Zahakos:** That could be on the record. But like I said, the environmentalists on council say this is a good idea. It's a start. It's something. It's a start and we're working on it. Why not? Why throw out everything? This is one thing that this group can do, is give us that sales tax rebate. It's a minor thing—a thousand bucks—but that helps with the car. As I said, as you develop more technology, it'll go toward the future.

A lot is being made about the fuel cell technology, but what is the fuel cell technology going to work on? Either electricity or hydrogen. Where are you going to get the hydrogen from? You get it from natural gas. If you want all these cars to be proper and use the new technology 10 years from now, you're going to have to have an infrastructure. We've already got a filling station that's on natural gas. I would assume it would be easy to convert it to selling hydrogen. We're in a downtown location. It's a step-by-step approach. We all grow up, but we start as babies and we learn how to walk. It's the same thing with technology. I wish we had a green technology that was available today where I could buy cars tomorrow and be completely clean, but it doesn't exist.

**Ms Churley:** We appreciate your ongoing commitment to this project. Thank you. We'll do what we can.

**The Chair:** We really should move on, but just a very neutral observation. It's a very special day. You disagreed with Mr Moscoe and earlier agreed with Mr O'Toole. That's just something I couldn't help but observe.

**Ms Churley:** Just for the record, I have often disagreed with Mr Moscoe.

**Mr Zahakos:** You're in a good group.

**Mr O'Toole:** It's kind of the Chair to acknowledge that I do try to work with all parties and all groups to move forward.

That being said, thank you, Mr Zahakos. I apologize for not being here, but I did catch part of it on television.



The reason I came down was because we had a presentation—I may have missed the thrust of yours—from Mr Manley yesterday, and his position, as I understand it, was basically to stop the artificial subsidy of natural gas cars for all of the above reasons: first of all, with Drive Clean, they fail higher, blah, blah, blah. Your position is you want to keep them?

**Mr Zahakos:** Definitely. To respond to Mr Manley's position, yes, there were some Drive Clean tests that were done five years ago and the older cars did fail, but what is being tested in that is not the actual fuel. Whether we like it or not, natural gas has no sulphur in it and of course there aren't going to be those kinds of emissions. Mr Manley talked about cars that failed that were 1995s and older. Yes, you cannot take an old car that's burning oil, convert it to natural gas and expect it to be a new car. That's the reality. The cars I own are just being tested now.

**Mr O'Toole:** I just want to get to a couple of questions.

**Mr Zahakos:** Sure.

**Mr O'Toole:** "Emissions: the natural gas industry's claim of huge reductions in emissions were and are untrue." He basically accused them of lying. He went on to say, and I kind of agreed with this point, that the Drive Clean test should be the definitive test. If they can't pass it, giving a vehicle, as a right of existence, an extra year or two isn't a proper mechanism at all. If it fails, it should be taken off the road—bingo—because there are no punitive measures other than the hundred bucks or whatever that it costs to get a provisional pass.

Don't you think we've gone to a lot of trouble to make sure all cars, regardless of the fuel, should pass the Drive Clean test to the manufacturer's standards, and that should be the test, not how old the car is? I know there's a lot of money involved in a taxi and all that kind of stuff.

**Mr Zahakos:** One of the things I've talked to city council about is exactly that. If you're going to do a test, it should be a fair test and you should know what you're testing. You should be testing the fuel and all those things. One of the recommendations we made in front of council was that you do a scientific test and a proper test.

There's a lot of debate about whether Drive Clean tests natural gas or alternate fuels. Yes, it tests what comes out of the fuel pipe, but that's what's coming out of the fuel pipe. It doesn't test the actual fuel itself.

Further to this, we just started testing our natural gas cars. The 1997s have to be renewed this year and are starting to be tested—they were not tested before—and they're passing.

**Mr O'Toole:** I have one more point I want to make. On fuel savings he says, "The natural gas industry claims"—and he felt there is collusion with the industry itself—that there would be as much as 40% fuel savings in the usage of their product. A chart included in my May 16, 2000 report clearly showed that was untrue."

There are charts here. They actually use more gas, more fuel. They fail more frequently, and they use more

fuel. Toronto had better get to the bottom of it. It sounds good. Everybody thinks they're friendlier and less polluting. It sounds to me like a shift on methanol, or alternative fuel. It does. It's ridiculous.

**Mr Zahakos:** OK. I'll talk in a very practical sense. In 1999, when we converted our vehicles to natural gas, our drivers were saving \$10 to \$12 a shift on fuel. Over a week they would save \$60 to \$70. They would save—

**Mr O'Toole:** If that's the case—

**The Chair:** Please let him finish, Mr O'Toole. Your time is up.

**Mr O'Toole:** —the marketplace will decide.

**Mr Zahakos:** That's right, and they did. In 1999 and 2000, they did. Obviously, they did. At that time more cars were being converted—that's correct—because drivers were saving money. The market has changed today. Today, the price of gasoline and the price of natural gas is almost the same, so because of that—we do not dictate the price of natural gas or gasoline. We sell both products in our station. All I'm saying to you is that there are international reasons why the price of gas goes up or down. Today the climate is really warm, so natural gas is lower. There might be a war somewhere in Africa, and all of a sudden the price of gas goes up. Those are things we don't know.

But we have to develop a long-term plan, and our long-term plan was based on what existed in 1999 and 2000. At that time, the price of gas was high. We were lucky. We had to sign a contract with Direct Energy to get a low price for natural gas, and we were able to carry that on. I can't forecast what the price of gasoline will be three years from now. When I buy vehicles they're for five to seven years. We have a 10-year commitment on our dispensing station. Sure, I wish I knew what the price would be.

I can't change my policy on a day-to-day basis either. I have to take a long-term look and say OK, regardless of what you say, at least 100 or so cabs that I have on the road today are spewing less pollution on the whole.

**The Chair:** Thank you very much. We really appreciate you coming forward and giving us a different view than we were hearing yesterday.

**Mr Zahakos:** We put our money where our mouth is and we've done it.

**The Chair:** Thanks very much.

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## ONTARIO SOYBEAN GROWERS

**The Chair:** The next presentation is from the Ontario Soybean Growers, Mr Matt McLean, board secretary, if you and anyone else in your delegation would come forward.

**Mr Matt McLean:** Just myself. I'll be making a PowerPoint presentation today.

**Mr O'Toole:** Except you can't get the computer to work.

**Mr McLean:** You've got my presentation in a hand-out there, so—

**The Chair:** That's all we need. We can handle paper technology.

**Mr McLean:** I think I'm ready here. As you mentioned, my name is Matt McLean and I am board secretary for the Ontario Soybean Growers. I would first of all like to thank the committee for providing the opportunity for me to come and speak with you again today. I spoke with you back in August of last year, and at that time basically gave you kind of a background on what biodiesel is, its characteristics and some of the benefits of the fuel.

Today I want to change gears a little bit and focus a little bit more on biodiesel's use and maybe make some recommendations as far as getting the biodiesel industry up and going here in Ontario. As you'll see, my presentation is Biodiesel: Cleaner Air from Canadian Farmers.

I'll start off with just a little bit about the Ontario Soybean Growers. Our organization is a commodity marketing board representing the province's 25,000 soybean producers. The Ontario Soybean Growers' interest in biodiesel is that we see it as an opportunity to create new market opportunities for soybean oil while also providing a cleaner-burning alternative to fossil fuels.

To start off, I just want to introduce this by saying that biodiesel is not a fad fuel. It's not developed here in Canada per se to a certain extent, but I think if you look worldwide you can see that it's in use to a great extent.

I just wanted to go through some of this for you so you get a better understanding. In 2001, the European Union produced and used approximately 300 million gallons of biodiesel. In the US last year, they produced and used approximately 35 million gallons of biodiesel. So as you can see, both in Europe and the US this is not just a small fad fuel. It is expected that by 2016 US production will grow to 809 million gallons. That is assuming a renewable standard, which is currently being looked at as far as legislation being implemented. Currently in the US, there are over 100 major fleets using biodiesel and over 65 million kilometres logged.

I want to talk a little bit about what is the driving force behind this both in Europe and the US. In the European Union, several countries have in place systems of tax incentives and specific legislation that both promotes and regulates the use of biodiesel. I've listed here basically the five main leaders in the European Union as far as the use of biodiesel, those being Austria, France, Germany, Italy and Sweden. The benefits of biodiesel are also being recognized through the work of the European Commission's climate change program. They are looking at implementing strategies and programs to address some of the things outlined in the Kyoto Protocol as far as reducing some greenhouse gases.

As far as some of the main driving forces behind biodiesel's rapid uptake and use in the United States, the main one is probably the Energy Policy Act of 1992, or EPAAct. This act was amended in 1998 to include biodiesel as an option for covered fleets to meet a portion of their annual alternative fuel vehicle acquisition requirements. Basically, EPAAct was put in place requiring large

fleets to purchase and use a certain amount of alternative fuels. It was amended in 1988 to add biodiesel as an alternative so that a large fleet, instead of having to go out and buy an alternative fuel vehicle, as long as they used a certain portion, and that being 450 gallons of biodiesel a year, got a vehicle acquisition credit for using the fuel.

Another main driving force in the US has been the US Department of Agriculture's commodity credit program. This is essentially a subsidy program which makes payments to producers of biodiesel to offset part of the cost of buying commodities to make biodiesel. I think last year this amounted to about a \$1.20-a-gallon subsidy for biodiesel production in the US, and that was biodiesel being produced from soybeans. Last year, the CCC program just covered soybeans. For 2002, they've expanded that program to include other feedstocks such as recycled oils and animal fats.

In addition, in the US there are several states working on renewable fuel mandates. I think the total is about 16 or 17 states have pending legislation right now looking at a renewable fuel mandate in their states. This is also going on at the national level. There's a Senate Bill 1006 by Hagel and Johnson looking at setting up a renewable fuel mandate. In addition, there's also Senate Bill 1058 by Hutchinson and Dayton, which is calling for a national-level exemption on the federal diesel excise tax for diesel fuel blended with biodiesel.

Switching gears a little bit, I want to talk to you about what are some of the developments going on here in Canada as far as biodiesel. I understand Tim Haig spoke to you a little bit this morning. He's from Biox Corp. As you're probably well aware, they have constructed a million-litre-per-year demonstration plant in Oakville, Ontario. It looks like quite a promising new technology, developed right here in Ontario. I think it's just waiting, on the verge of getting some things going up commercially here in Ontario.

Another big development is in the province of Quebec. Montreal transit in March 2002 will be beginning a biodiesel pilot study using 140 of their Montreal transit buses. They'll be testing and running their buses on blends ranging from 5% to 20%. This study, once underway, will be the largest biodiesel test study in North America. The fuel used for this is being derived from both soybean oil and rendered animal fats.

Another interesting development right here in Toronto, as I'm sure some of you are aware, is that in October, Toronto Hydro announced that they're going to be running this winter, or are running right now, 100 of their diesel vehicles on a 20% biodiesel blend. They're testing this right now, and if testing is successful, they intend on expanding the use of biodiesel to their full fleet of approximately 500 vehicles and also increase the level of biodiesel to 100% this summer. So that's a very interesting development right here in Toronto.

Other things going on: there are efforts currently underway through the middle distillate fuels committee of the Canadian General Standards Board. They're look-



ing at developing a Canadian standard for biodiesel. This will be developed very much similar to a standard in the US that has just passed this past summer, the ASTM standard for biodiesel. The development of a standard like this will greatly ease the introduction of biodiesel into the Canadian fuel market and, I think, probably give some reassurance to customers of the quality of fuel being developed.

I want to shift a little bit and just give you a few policy recommendations from the Ontario Soybean Growers' point of view on maybe some directions that this committee can recommend and carry on through to government. The first one and, from my point of view, a very critical one: I think it's essential that biodiesel have tax parity with the other alternative fuels in Ontario. Currently ethanol, propane and compressed natural gas have a tax exemption for the provincial on-road fuel tax. I think this is a very critical thing to put in place for biodiesel. I think it would just put it on par with some of the other fuels and make it a little bit more economically attractive to some companies as far as putting up commercial production facilities and selling the fuel right here in Ontario.

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The second recommendation is to look at the establishment of a renewable fuels mandate, and that that be a mandate requiring that all on-road transportation fuels contain a certain percentage of renewable content. In the US right now there's a big drive for this, both at the state level, as I mentioned, and the national level. Basically, driving this has a lot to do with cutting back emissions, environmental reasons, as well as fuel security issues as far as using more fuel that's produced domestically and renewable on top of that.

The third policy recommendation I have is to establish a government renewable fuels procurement policy. I think this could very much tie in with a mandate as well. This would be the government taking a bit of a lead as far as using and promoting the use of some of the renewable fuels such as biodiesel here in Ontario and maybe taking it a step further and procuring fuel at a higher level than what would be mandated through that mandate. I think this is the kind of policy that should very much show a leadership role as far as moving toward renewable fuel sources.

Just to summarize a bit, I think the timing couldn't be better for Ontario to lead the way in developing the markets and the use of biodiesel here in Canada. As you can see, worldwide—in Europe and the US—there is very much a push to getting these fuels on the market. Right here in Canada I think there's a perfect opportunity for Ontario to lead the way for Canadians as far as promoting use and getting renewable fuels on the market.

Through the implementation of effective incentives and policies, such as the tax exemption, the renewable fuels mandate and the government procurement policy will encourage the production and use of biodiesel fuel in Ontario, which will benefit not only the environment but public health, agriculture and economic development.

That's all I have, and I welcome any questions.

**The Chair:** We have about three and a half minutes for each caucus.

**Ms Churley:** Thank you for coming back again. Did you read our report?

**Mr McLean:** Yes, I did.

**Ms Churley:** What did you think?

**Mr McLean:** A good report.

**Ms Churley:** A good first step.

**Mr McLean:** Yes. I think a lot of it was bringing in the comments of a lot of people.

**Ms Churley:** Were you happy enough with our comments around alternative fuels specifically?

**Mr McLean:** Yes. Like you say, I think it's a good first step and heading in the right direction.

**Ms Churley:** Certainly the first report was to tell people what we heard. In the next, we need to have more specific recommendations to the government, which is why your coming back and talking to us again today is important as we try to determine what those recommendations are.

I'm interested in a couple of things in your presentation. You said, "If testing is successful." I'm just wondering what kinds of problems they will be looking for in the testing of biodiesel.

**Mr McLean:** It probably wasn't great wording for me. I don't foresee that there would be any problems. Like anything new, they're trying it out to see if it works for them. In any talking I've been doing with them, so far it has been working great and they're very keen on it. I didn't say that foreseeing that there would be any problems with it.

**Ms Churley:** I understand that, but whenever you hear it's hydro and Montreal—I hadn't realized that Montreal was—is it Montreal Transportation?

**Mr McLean:** Yes.

**Ms Churley:** They're paying for this?

**Mr McLean:** Yes.

**Ms Churley:** What's required for this? Is it a special conversion of the existing buses?

**Mr McLean:** No. That's the nice thing about biodiesel: there's no conversion necessary at all. It's strictly pour it in the tank and go. I think part of their testing will be looking at it as far as what their fuel mileage is compared to using straight diesel, looking at the emissions and stuff; just basically looking at the fuel and seeing that it's meeting their requirement of reducing emissions.

**Ms Churley:** Who determines and how is it determined what proportion to use?

**Mr McLean:** A lot of the testing that has been done in the US has predominantly been on a 20% blend.

**Ms Churley:** You probably told us all this before.

**Mr McLean:** It was the best trade-off as far as getting the best environmental punch for the economics. The 20% blend is a standard blend.

**Ms Churley:** I believe you said that in the US there is a big push to get transportation fuels containing a certain

percentage of renewable content but it hasn't happened yet in any state, as far as you know.

**Mr McLean:** No state has officially passed legislation, but a lot of them are very close. Minnesota is the big one leading the way. I think if you see something go there, the rest are going to follow.

**Ms Churley:** Because that'll help?

**Mr McLean:** Yes.

**Ms Churley:** If it happens somewhere, then it can push others into doing it. That's great. OK, thank you.

**Mr Hastings:** Mr McLean, has the Toronto Transit Commission or any other transit commission in Ontario approached the Ontario Soybean Growers Association or vice versa in terms of trying to get them to look at biodiesel?

**Mr McLean:** We have in the past. Actually, before I started with the board, probably back about four or five years ago, the soybean growers sponsored a bit of a study using biodiesel in Toronto Transit Commission subway utility vehicles.

**Mr Hastings:** Shocking. They actually tried it?

**Mr McLean:** Yes, they used it. I think there were some problems with their testing at the time due to the ventilation system. So it's not that they didn't get the results they wanted, but the ventilation system at the time of testing wasn't working properly, so I don't think they were backing some of the results in the tests. But they were looking good as far as reducing some of the emissions associated with—

**Mr Hastings:** If you had a better tax treatment for biodiesel in Ontario, how would that affect the subsidies they're now getting for soybean production, or how would it reduce the existing subsidy compared to the one you mentioned in the US, where in some states it's \$1.20?

**Mr McLean:** In soybean production—I don't know how much you know as far as the subsidy programs. A lot of them are based on the market value of soybeans. Once they drop below a certain point, it kicks in. We see the opportunity in soybeans as far as biodiesel increasing the market for soybean oil. Right now in Ontario, 65% of the soybeans are crushed in the crushing industry for soybean meal, which goes to the livestock industry, and soybean oil, which predominantly goes to the food industry. Basically the limiting factor on how much is crushed right here in Ontario is getting rid of the soybean oil. It's in excess. If we could find another value-added market for the soybean oil, we'd be able to crush more soybeans here in Ontario as opposed to importing. Right now we import approximately 800 million metric tonnes of soybean meal from the US for livestock feed. So if we can get a market for the oil, we can increase crushed, decrease some of the reliance on imports, bring the value of soybeans up and therefore some of those subsidies wouldn't have to kick in. You'd have a higher value for the soybean crop.

**Mr Hastings:** Hence the tax treatment you're advocating?

**Mr McLean:** Yes.

**Mr O'Toole:** I just wanted to acknowledge how important it is. I represent primarily an agricultural riding and, of course, soybeans. I'm very familiar with their pressure to recognize it as a viable alternative to the carbon-based fuels. I just want to be on record as saying I support them and the initiatives to educate the rest of us. Is there anything specifically the government can do, or should this be a case of the tax? The tax today, if it was treated the same as some of the others that are supported, is that the approach you want?

**Mr McLean:** I think it's an approach that is somewhat critical as far as getting the industry up and developed here in Ontario. It has been a benefit on the ethanol end of things as far as getting that industry kick-started and up and going. I think that's really what we need on the diesel fuel end of things so that it's put on a par with some of the other alternative fuels to get the industry up and going. If you put something in place, there are people out there who will take that opportunity and run with it.

**The Chair:** Thank you very much. We appreciate your presentation and the content.

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## KINETRICS

**The Chair:** Our next presenter is Kinectrics, Mr Robert Stasko, director of business development. As you begin, state your name for the sake of Hansard.

**Mr Robert Stasko:** Good Afternoon. My name is Bob Stasko, and I'm here representing Kinectrics, a company that some of you may recall was formerly Ontario Hydro Technologies. These days we are diverting a significant amount of our activity and resources toward the development of emerging energy technologies.

I thank you for letting me speak to the committee yet again, having done that once before in August. Today I will be responding to the report, and I will comment that I found the report to be a very useful compilation of the witness presentations up to that point, and presumably of most of the other findings you've accumulated as a result of your deliberations.

It's tempting to respond to the report in general. But I note that there were 60 policy questions, and I'm not going to try to answer all of those 60 policy questions. I'm going to limit my response today to basically two areas: Summary A, the section that talks about programs and measures for green or renewable energy—I'd like to look at the policy options that were suggested there. Secondly, I'd like to respond to some of the specific energy technologies in Summary B, and those would be ones that we have a particularly strong interest in developing or, in some cases, things that we felt didn't get sufficient witness submissions for a proper evaluation.

If we could flip to the first page—I should mention that I was tempted to bring my laptop computer, but after the misadventure I had last time, I thought we would stick to paper.



Basically, there were four approaches mentioned for programs and measures for renewable energy: a renewable portfolio standard, a public benefit fund or system charge, net metering for distributed energy sources and, finally, energy efficiency standards. I added "for energy utilization in the 21st century." I wanted to address that specifically.

Talking about the renewable portfolio standard, I just want to comment that clearly this is a policy approach that has worked in other jurisdictions and has the opportunity to complement the development of green power generation here in Ontario. This will allow one standard for all major suppliers and will level the playing field if implemented correctly.

I should mention, though, that defining what constitutes a major supplier in Ontario in the present developing market will be a challenge. I presume that will be a task of the OEB, although it could be with government direction. Finally, defining the appropriate renewables mix for Ontario and which technologies are green will also be a challenge.

Flipping to system benefit charges, again there's ample experience in other jurisdictions to draw from, and there has been some success elsewhere using this approach. I'm thinking particularly of California, although that might not be the best example to use right now. But 10 years ago they had a system charge that worked very well. The problem with that, of course, is that there was not a market-opening issue that coincided somewhat with that. I feel there would be quite a resistance to adding yet another system charge here in Ontario when there's sufficient concern right now about the price of electricity when the market opens.

I would suggest that rather than a new system, we re-examine the issue of the debt recovery charge and perhaps examine ways of looking at a differential debt recovery charge that could be used to flow funds to developing new energy technologies. This could be either by advantaging those technologies by a lower DRC or by flowing some of the DRC collected through to development of those technologies.

About net metering and green power—I was a little puzzled by this, and maybe it's my understanding. My understanding of the present regulations regarding small generators of green power is that they will be on "must run status" from the IMO as long there is a market for green energy in this province. I think you've all heard, and I presume I'm not the only one who will suggest, that there is in fact less green power in Ontario right now, and projected into the near future, than the demand we've polled for that, to the tune of where Ontario Power Generation, I think, is trying to get 500 megawatts in place. I could be wrong here, but I believe they're up to 125 right now.

I guess what I'm saying is that with some care, and using existing structures, this issue of net metering may be somewhat moot. Nonetheless, there are certain technologies which are not necessarily renewable that might still require some differential treatment. I'm

thinking again of small, distributed, more environmentally benign technologies that presently have to compete with large traditional generators.

I can't help but mention the irony that green power will be sold at a premium in this province—that's the expectation—even though it adds the least to the externalities in environmental costs that presently are off the balance sheet.

Finally, enhanced energy efficiency—what I call triple-E—is no doubt one of the most cost-effective ways to generate megawatts in Ontario. Ontario has been a jurisdiction that in the past and up to the present has actually been very good at generating new standards and regulations to ensure energy-efficient products on the utilization side. I can cite some examples later if we have time for questions.

However, what I'd like to address today is that there is a whole new class of technologies that are presently overwhelming us, and people may not be aware of what they're doing. I'm going to talk about computers, business machines, Internet infrastructure and information transmission for cellphones. I might mention that we all have these technologies or Palm Pilots, but they all hook up to transmitters or huge servers elsewhere and use up a lot of power; in fact, an inordinate amount of power for the amount of utilization we have right now.

When you consider that one server farm takes 80 megawatts—a 60-megawatt server farm just located in Ottawa is going to cause the distribution company there some distress. So I'm suggesting that the government should look seriously at how to address this new issue of inefficient Internet and communication infrastructure. My final example is that in the United States at present it's estimated that 15% of all new load growth is directed at this sector.

I want to talk a little bit about those technologies I mentioned earlier: fuel cells and future fuels. While fuel cells may not necessarily be green at their early stage of development, the stated goal of the futurists who are involved in the development of this technology is that they basically feel renewable hydrogen, methanol and biogas will be the source of energy for these technologies in the future, later in the 21st century.

I just want to stress that although fuel cells may not be classified as renewable right now, they will be if they burn renewable fuels, and that is in fact a goal. I would ask that the government address the issue of accelerating this trend for both fixed and transportation application of fuel cells.

Next I'd like to talk about biogas from agricultural waste. We believe this is a huge untapped resource in Ontario. While other jurisdictions are harvesting this new energy source, there is not at this time a single working pilot facility in Ontario, although I should mention that Cold Spring Farms and OMAFRA are working together to launch what hopefully will be the first pilot of this nature here in Ontario, and we are supporting them in that endeavour.

We sense that part of the reason this hasn't been developed to its potential is the confusion and

controversy about jurisdiction, which has impeded the timely development of this. By that I mean, is this an agricultural jurisdiction, a municipal jurisdiction or an energy jurisdiction? I ask the government to address this in trying to get a uniform partnership moving in this direction.

One of the great benefits of biogas, as you probably know, is that in addition to generating green power it addresses the issue of animal manure treatment and the policies surrounding that, the pathogens in groundwater resulting from that. It will also create a whole new class of renewable fertilizers, which will offset the production of artificial fertilizers.

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The next technology I'd like to talk about briefly is district heating. Again, I thought it didn't get enough witness submissions. I want to talk about the combined heat and power opportunities and efficiencies associated with cogeneration, which essentially, as they are now, are usually sized by their heat loads, not electrical loads. When I look at the amount of natural gas burned in Ontario for space heating—and you realize that someday our future generations will look back and say that this was a very inefficient use of this non-renewable resource; that we should, in fact, be incrementally using that natural gas to produce both electricity and power in a combined facility. What I ask the government to address is the way of looking at incentivizing the infrastructure costs of piping that will enable more of these kinds of technologies to be taken up.

Finally, something of an orphan: the ITER project. I thought I'd address the ITER project on fusion to try and contextualize it. I want to position the ITER project not really as something that is an energy project in the near term but, rather, something that will generate scientific knowledge and economic development: scientific knowledge for the world and economic development for Ontario. It's highly unlikely that fusion will impact energy use until the middle of this century. I'll just give a sidebar here. It's like so many things; the example I can think of is that the fundamental theory of computing and computers was actually developed in the 19th century, with some later developments in the early part of the 20th century. But it wasn't until the transistor was invented in the 1960s that the technology actually allowed for the enabling of computers and computing as we know it. Fusion is one of those things. It still requires a fundamental scientific basis before we can harvest it for energy. So I look at this as an economic development opportunity also, where billions of dollars of economic activity here in Ontario, funded for the most part by the international community and the scientific community, would generate tax revenues far in excess of what the government contributions would be.

Finally, my summary: I think now is the time to craft a winning strategy where the government can enable new, efficient and/or renewable forms of energy that will address environmental concerns, promote new technologies, and also provide energy supply options for the

province. Also, while much can be learned from policy successes in other jurisdictions, the new energy paradigms of the 21st century will present significant innovative opportunities that are unique to Ontario. I ask the committee to address that uniqueness.

**The Chair:** Thank you for your presentation. We have about three minutes per caucus, beginning with the government side.

**Mr O'Toole:** Thank you very much. That was quite a good review of options, choices, policy and practical—I just want to concentrate on two.

We heard earlier this morning about the renewable portfolio standard. I sort of made the case—at least, I don't think I made it, but I stated it. The argument is that if we invest a lot of money, we'll have a payback. We always hear that if we put more money into health care, we'll save a lot. We've been pouring it in like we're hemorrhaging, and there's just more demand. I had a good response, though, from the presenter this morning. I'm asking for a response on this. What could we do to engage the consumer on this renewable portfolio?—not so that Enbridge or OPG gets a big kickback and then they just jack up rates so their revenue doesn't change. Do you understand? That's what they do.

**Mr Stasko:** Yes, I understand.

**Mr O'Toole:** Their revenue never changes. They just sell less electricity and charge you more for it, so the consumer's just out there hanging by the thumbs. How could you really incentivize the consumer to cut down the use, go to off-peak use, and all that?

**Mr Stasko:** Once time-of-use rates percolate down to the end user as a result of the open electricity market, I think incentives that presently don't exist will exist.

**Mr O'Toole:** Time-of-use rates. That'll help in hydrogen, if we could store it.

**Mr Stasko:** No, it will actually help with electricity. If in fact people elect to buy off the spot market rather than getting a retailer, there will be strong incentives to use power off-peak. And there may be other incentives. I'm thinking of the Sacramento Municipal Utility District, which has been very innovative. I'm sure you've heard of SMUD. They did some very clever things to incentivize the use of renewable technologies, even among people who are quite happy to put up facilities in their own homes at their own expense.

**Mr O'Toole:** I've got a couple more questions. The net metering: I've heard there are some municipal utilities that allow, through technical changes, net metering, which deals with off-load stuff, peaking?

**Mr Stasko:** Yes, and in fact, as I understand it, the new energy marketplace in Ontario will enable that very thing. There will still be some procedural and technical barriers, but, in theory, as long as there's a market for your power you can send it back into the system.

**Mr O'Toole:** That's good. The last one was—

**The Chair:** Thank you very much. We move on to Ms Churley.

**Ms Churley:** If you're quick, I'll give you part of my time.



**Mr O'Toole:** The last one I had was the triple E, the efficiency ones. I wasn't really clear on that, if you had a response. It's a good point. Efficiency—is that appliances?

**Mr Stasko:** That's mostly appliances. I guess I was asking that you focus on all of the information and communications technologies. Just to give you an example, office buildings in downtown Toronto now require three times the electrical power that they were originally designed for because of desktop computers, Xerox machines and servers. No one is addressing the efficiency of these devices, and they are driving up the loads of many jurisdictions.

**Ms Churley:** In fact, that was where I was going to go. That's quite fascinating and disturbing, what you said about this new kind of technology. I've got my cellphone with me, my PalmPilot with me. I think we almost take it for granted. We hold these little things in our hands; they're there. We recharge the batteries. You don't think about the amount of electricity used. You mentioned the US is starting to deal with this. How do we approach this problem?

**Mr Stasko:** I have no easy answers. The only anecdote I can give you is that in California, of course, this became critical during their last energy crisis when they realized that in San Jose most of the power was going to these server farms I mentioned. These server farms are what's at the other end. Whenever you get on the Internet, chances are the server farm is in California, or it might be in some other high-tech jurisdiction like Kanata, but there aren't that many there yet. They suck up a lot of power because it's never been a criteria for design.

**Ms Churley:** But are there those looking at design now, trying to change the—

**Mr Stasko:** Indeed.

**Ms Churley:** Who? Where might we get information about that?

**Mr Stasko:** I would suggest California right now, but I must confess ignorance. I can't give you any more guidance.

**Ms Churley:** But there might be others.

**Mr Stasko:** I could get back to you if necessary.

**Ms Churley:** Those are my questions.

**Mr O'Toole:** I just wanted to make one comment. We could actually build these computer servers—

**Ms Churley:** I'll give you permission to take a little more of my time to make a comment.

**Mr O'Toole:** It's humorous, really—with your indulgence.

**The Chair:** I hope so.

**Mr O'Toole:** We could build these servers—you have to get this—beside a manure pile. Not that they create manure—

**Mr Stasko:** Not so outlandish. I know, there's some irony there.

**Mr O'Toole:** Because there's biomass.

**The Chair:** Thank you very much. We appreciate your coming before us, especially some of the thoughts you had for us on where some of this power is going. I

think it's a bit of a surprise to some of the committee members.

## CITIZENS FOR RENEWABLE ENERGY

**The Chair:** Our next presenter is Citizens for Renewable Energy, Ziggy Kleinau, coordinator. Please come forward, Ziggy. There's a total of 20 minutes for each presenter. What you don't use in presentation we'll divide between the two caucuses that are here. Please start by stating your name and away we go.

**Mr Siegfried Kleinau:** Honourable Chair and members of the committee, my name is Siegfried Kleinau but I'm known as Ziggy. I thank you for the opportunity to make this presentation today on behalf of the directors and members of Citizens for Renewable Energy. I am the coordinator for this non-profit organization incorporated in Ontario six years ago, originally founded by organic farmers concerned about the effect from polluting energy generation on their crops. CFRE now encompasses well over 1,000 members from all walks of life, but we can still call ourselves a true grassroots organization with financial support solely from its members. Our concern for the sustainability of the country's natural resources has set our goals on promoting energy conservation, as well as the use of clean and safe renewable fuel sources for electricity generation.

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Having participated in the public comment forum of the Advisory Committee on Competition in Ontario's Electricity System, the Macdonald committee report reflected our contention that, "The process of restructuring must be accompanied by consideration of the most appropriate regulation or other instruments to secure the protection of the environment and, specifically, to support energy efficiency and the introduction of renewable energy technologies." There was emphasis added to this quote from page 91 of the report, which now dates back almost six years.

A little over a year previous, in February 1995, our public utility came out with a document titled Renewable Energy Technologies: Strategy and Program for Sustainable Energy Development. I just happen to have a few copies here for distribution. I might have enough for everybody here. It's such an important study that I had to comment on it. In it, Allan Kupcis, then president and CEO of Ontario Hydro, states: "Renewable energy technologies are the wave of the future. Ontario Hydro will be a leader in addressing market barriers to these technologies, and to opening the door to a cleaner, more cost-effective future."

So where are we now, seven years later? Yes, one wind turbine at the Bruce nuclear visitor centre has produced thousands of megawatts since its commissioning in 1995 and, yes, Ontario Power Generation just spent a couple of million dollars on the largest wind turbine in North America, located at the Pickering nuclear plant. But what they don't publicize widely is the \$1.3 billion of ratepayers' money invested in bringing

back 30-year-old reactors, which still do not have the full emergency shutdown capability that all other reactors have. Will they be producing electricity for another 10 years? Not very likely. With that huge investment, they could have installed photovoltaic solar panels on every unshaded south-facing roof in the city of Toronto. These clean and safe energy-generating devices are guaranteed for 25 years not to lose more than 10% of their efficiency. That kind of alternative fuel would easily have produced the same amount of power as those old, dangerous reactors, without power loss by long-distance transmission.

Sure, there is no electricity generated at night from these panels, but that's where the net billing potential comes in. Feed any surplus into the grid during the daytime and supplement power needs from the wires at night. Apparently, this plausible option has been deleted, thanks to pressure from large generators. Here we go. The barriers are still being put up to thwart small competitors. It is high time the government came clean when talking about a fair marketplace in a deregulated electricity era.

As pointed out in this forward-looking hydro strategy document, "Competition to supply energy services is on the increase. In recent years, a trend toward 'open access' has developed, that will likely see a more distributed electricity system with smaller decentralized generation, and increased private sector participation."

Then on page 10 it details some of this vision by outlining a utility rental-leasing plan where Hydro installs solar water heating, photovoltaics or wind equipment for their customers which would remain their property and be maintained by the utility. The other option is even more appealing, with Ontario Hydro helping customers purchase their own equipment of that kind by paying for it through their utility bills. This would be a win-win solution, with co-operation between utility and customer instead of the determined customer going it alone, as I did eight years ago when I asked Ontario Hydro to disconnect me from the grid because I was able to generate electricity from clean and safe renewable sources in a solar-wind hybrid system.

In our submission to the standing committee on resources development on Bill 35 in August 1998, we touched on the great opportunity for job creation by supporting the establishment of a manufacturing sector for solar and wind turbine components which up until now is virtually non-existent here, and even in Canada. We mentioned Denmark as an example where the manufacturing of wind turbines has created employment that has more than doubled and has overtaken the fishing industry as the largest employer of that country. Last year I received the latest statistics from Germany, where wind turbines now have an annual output of 6,900 megawatts and where there are almost twice as many workers employed in the wind energy industry as in the nuclear industry. Several offshore wind farms are in the planning stage. The power produced from this new, clean and safe renewable source would be enough to completely displace the output of all of Germany's nuclear plants.

There have been several projects proposed in the Great Lakes region to drill for oil offshore. What an insanity, to endanger the drinking water supply of 40 million people in such a risky undertaking. If we really need more energy supplies, can't we do what Denmark and Germany have done, what Ireland and now even the United Kingdom are doing: catch the free fuel that leaves no waste or pollution by placing wind turbines onshore or offshore on our windy lakes?

I haven't been able to get the time to put in something else on statistics in regard to energy conservation, because a number of studies were done. One study said there would be enough energy supplied by Niagara Falls and the small hydro generators if all the existing homes and buildings were retrofitted and if all the new buildings were energy efficient.

The other thing I'd like to mention here, and I've mentioned it before, is that conventional energy generation is so inefficient because about 70% of the power in the fuel goes out as heat; actually less than 30% is reaped in the energy generation process. We lose about another 8% to 10% in the process of transmitting it through the high-voltage lines, with those ugly towers.

So energy efficiency is one of the biggest things in anything the government should be looking at. Also, net metering should definitely be in any of the OEB regulations.

#### 1510

The systems benefit charge: we recommend that it be done the same as with the natural gas industry, that there be a regulation that sets aside a certain amount of money to be able to bring this energy efficiency to fruition. If it can be done for the natural gas sector, why not for the electricity sector? In other words, there are a lot of good things that the government can do, and definitely remove the barriers that exist now.

Isn't that the logical choice, to get off the conventional fuel generation to try and mitigate climate change and give hope for a livable future for our children and grandchildren? That's our call, from the Citizens for Renewable Energy. Thank you very much for giving us the opportunity.

**The Chair:** We have about two and a half to three minutes per caucus.

**Mr Ouellette:** I'm interested in when you went off the grid. You said that it's a combination of solar and wind that you're utilizing in your house.

**Mr Kleinau:** That's right, yes.

**Mr Ouellette:** What sort of generator are you using for the wind? What do you generate from that?

**Mr Kleinau:** We have a 400-watt unit which was manufactured in Flagstaff, Arizona. It's a very compact unit. The good thing about these units is that they're modular. You can add to them if you need more electricity.

**Mr Ouellette:** How long would the blades be and how tall would it be?

**Mr Kleinau:** I should have brought pictures. The blades are about this long. Actually, this industry is



coming out with a new model that's a lot quieter than what I've got now and it can be used in urban locations. It can be put on a residence.

**Mr Ouellette:** If and when net metering takes place, would this be to your benefit? Would you be able to sell back? Do you produce an excess capacity?

**Mr Kleinau:** In my case, I'm disconnected from the grid. I haven't paid an electricity bill for eight years now. It sure is a powerful feeling.

**The Chair:** No pun intended.

**Mr Ouellette:** But if you were to reconnect, would you be able to? Do you use natural gas for any other purposes?

**Mr Kleinau:** No.

**Mr Ouellette:** So your principal for water, heat, is electricity etc?

**Mr Kleinau:** I heat with wood. I'm in the lucky position to have a 50-acre woodlot, so that helps, with a lot of trees dying there from climate change. We've had three-month droughts there several years in a row, except for the one previous, in 2000. But last year was terrible: three months and not a drop of rain. The river nearby dried up.

**Mr O'Toole:** Just a quick one.

**The Chair:** If you can do it in a minute, Mr O'Toole.

**Mr O'Toole:** In the quote you made from Mr Kupcis, I think there's a small typing error. "Ontario Hydro will be a leader in creating barriers for market"—no, no, "addressing market barriers." I think they've got the wrong word in there.

Do you think Ontario Hydro should actually be involved in demonstration projects creating wind generation, or should it be other entrepreneurs? Aren't we trying to divest them of this generating capacity somehow and to let other people get into it who really don't want to protect all these assets?

**Mr Kleinau:** Our problem is that they are still spending billions in ratepayers' money to bring back reactors that haven't really been needed for over three years, like in the Pickering case, the old Pickering reactors. Where is the logic there? This is something where they could have really gone to this program here, which was abandoned two years later, in 1997. I've got a letter from Rod Taylor—

**Mr O'Toole:** But should they be involved in these alternate generation projects directly, OPG?

**Mr Kleinau:** Yes.

**Mr O'Toole:** Should they?

**Mr Kleinau:** They should.

**Mr O'Toole:** Directly?

**Mr Kleinau:** This is a perfect example of how they can help the homeowners. You see, that's the beauty of alternative energy, or, better, renewable energy. These fuel sources are everywhere and we just have to catch them. That's why we need help in that regard, because right now all these components have to be imported and this is the big problem. It actually doubles the price. I could have got these wind turbines for \$500 if I went south of the border. Up here they cost twice as much—

\$1,000. Photovoltaic panels are practically twice as much here too, with duty on top of it, taxes. We've been after the federal government to at least rebate the GST, and I believe the provincial government could come around and rebate the PST, the provincial sales tax, just to put their money where their mouth is.

**Ms Churley:** Ziggy, it's nice to see you again. I think the last time I saw you, we were in the same room with Irene Kock.

**Mr Kleinau:** Exactly.

**Ms Churley:** Who unfortunately was killed in a car crash on New Year's Eve. She was an incredible human being who was very involved in the anti-nuclear movement, the peace movement and was at several meetings around our committee. A very big loss, no matter what side of the equation you're on in this. Anyway, I thought it was a good opportunity to pay a little tribute to Irene; an incredible loss for our community. That's the last time I saw you, and we were talking about this committee and its work.

I want to take this opportunity to promote you and all the work that you've done and the Citizens for Renewable Energy. There's a booklet. What this group does is try to help people keep their electricity bills down, to learn about energy efficiency and conservation. They have done a tremendous amount of work for free—I know you have, Ziggy—over the years and I think we all want to thank you for that and thank you for coming forward today. People should get this little booklet. There are really good tips in there.

I just have one quick question about nuclear power. Specifically you talked about the wind turbines in Germany and the annual output of 6,900 megawatts, where there are twice as many workers employed in the wind energy industry as in nuclear energy and if you built enough of these, it could replace the output of all of Germany's nuclear plants. Is Germany in the process of phasing out those plants? Do they have a deadline? Is that part of their goal?

**Mr Kleinau:** They do have a deadline. They had a lot of negotiations with the nuclear industry because of the long-term contracts that they have with suppliers of their fuel. But there is a deadline that within 25 years the last nuclear reactor will be phased out, will be taken out of service. Also, by 2005 there will be no more reprocessed fuel used in these reactors, which is called the MOX fuel, made from plutonium reprocessed.

**Ms Churley:** So that's by 2005?

**Mr Kleinau:** Yes.

**Ms Churley:** And 25 years as of when?

**Mr Kleinau:** That was actually last year when this agreement was signed by the government and the industry.

**Ms Churley:** That's what I thought, yes. So that would mean there must be an incredible amount of innovation going on in Germany, knowing that they've got 25 years to completely phase out nuclear power. I bet there is some really interesting stuff we can learn that's going on over there.

**Mr Kleinau:** As you can see, they are in the process of really widening the projects on wind turbines and wind-generated electricity. They also have enlarged the big solar roof program. They originally had a 10,000-house solar roof program that's now going to be like one million rooftops outfitted with photovoltaic panels.

1520

**Ms Churley:** That's somewhere else, the million—California.

Can I ask another quick question. I don't usually do this, but I wanted to ask about their energy efficiency and conservation programs. I assume that they've really been beefed up too since they decided to phase out nuclear power. Do you know?

**Mr Kleinau:** I'm really glad you mentioned that, because the appliances in Europe are really so much more efficient compared to ours here that we should really take a look at it and bring them over here. Just to take a washing machine, their washing machines take only about one third of the water that our washing machines take, and the laundry comes out clean, maybe even cleaner than in these washing machines here on the North American market. That's just one example. Efficiency in the appliances goes a long way on cutting down on electricity use.

Just to mention in regard to Irene Kock, I was working very close together with her on the green energy task force that I co-chaired, the Great Lakes United coalition. It's an international coalition. She was putting together a new energy policy for the Great Lakes basin. As I say, it's a terrible loss. I don't think she can ever be replaced. So it was not a good start for the new year with regard to renewable energy, but maybe the government can really recognize that there's a way to go.

**The Chair:** Thank you very much for coming forward with your presentation. As always, we have enjoyed it and it's been very informative.

#### MEA TECHNOLOGIES

**The Chair:** Our next presenter is MEA Technologies, Brian Docherty. As you begin, for the sake of Hansard, please state your name. There's a total of 20 minutes designated for you. What you don't use in presentation will be divided equally among the caucuses.

**Mr Brian Docherty:** Good afternoon, ladies and gentlemen. My name is Brian Docherty. I have a company in Hamilton, Ontario, called MEA Technologies. We are the Canadian distributor of a product called the Ferox combustion catalyst. We have been in business since about 1993 in the Hamilton area, and Ferox is an advanced combustion fuel catalyst that, when added to any type of gasoline or diesel fuel, will complete the combustion process significantly, thereby reducing significant numbers of the polluting emissions coming out of the exhaust stacks or whatever it's used in.

We reviewed your interim report of November last year, and after reading it from front to back and back to front we feel that we're a little late maybe getting here,

because we've actually been around and been involved with both the federal government and a lot of municipal governments across Ontario who have taken a look at our technology and found it to be rather intriguing, something they hadn't really ever seen before and how it works.

When you come out with a product like this, there's always a lot of skepticism, and unfortunately we're kind of looked upon as a used car salesman or something like a Canadian Tire aftermarket product, so to speak. But I want to assure you that the roots of this product are rather significant in that this technology was originally developed by a team of PhD chemists down in Utah who were under contract with the US military and the US aerospace program in regard to finding technologies that would make solid rocket fuels burn as completely as possible with as little waste as possible.

The team of PhD chemists down in the States who did this are world-renowned chemical engineers. They are all, as I said, PhDs. They are all graduates of Brigham Young University, which is regarded as the top chemical engineering university in the world. What happened, basically, is that the technology and the research that was done in respect to these solid rocket propellants was then transferred over to another group—actually, the same group with a few changes—to apply this same technology to basic liquid fossil fuels; in other words, being able to make them burn as completely as possible with little waste.

Now, there's a standard scientific fact that this air pollution problem that we have today is caused by one thing, and one thing only, when it comes to pollutants from engine exhaust, and that is that it's simply the by-product of incomplete combustion. The fuel simply doesn't burn 100%. You thereby get a list of poisons as long as your arm. If you take any volume of gasoline or diesel fuel, and you really can't do this unless under laboratory conditions, if you burn that volume of fuel 100%, you only have two things left over, and that's carbon dioxide—CO<sub>2</sub>—and water. Anything less than 100%, you get a tremendous number of poisons created.

Basically how the Ferox technology works in that respect is that it is a liquid and it's added to the fuel in a 1-to-5,000 concentration. It acts in two ways. The first thing it does is it modifies the fuel so that it will burn at a lower temperature. The problem with the fuels on the market today is that they require very high temperatures in order to combust. Ferox lowers the amount of energy required to activate that fuel, thereby giving the fuel more time to combust. Subsequently, because it has more time and it burns more completely, you get these major reductions in these polluting emissions.

In the beginning, when we first introduce the technology here, obviously that's just talk. Now you need specific data to prove what you're saying. After a couple of years doing some public sector testing down in the Hamilton area—for example, the Hamilton fire department were the very first people to try it. Fire trucks, for example, have a very unique situation in that they are



very large, heavy-duty diesel vehicles that do very, very small trips and may have to run for a large number of hours at a time at a scene. They are very high up on the list of vehicles that are susceptible for heavy diesel smoke because of that.

We approached them with this product. They said, "We have one problem and one problem only, like every fire department probably in North America: we have a lot of particulate problems because we start these vehicles up inside the engine house. You get these big clouds of black smoke that are being emitted right off because they could have been shut off for hours or days, for that matter." What they are basically looking for is for us to eliminate that. To make a long story short, there is a report in—does everybody have one of these, by the way? OK, good. They have a report in there on what their results were. The product has shown virtually a complete elimination of particulate smoke in these trucks.

That got the attention of the municipal fleet in Hamilton, who then did their own testing at Mohawk College in Hamilton, using some of their emission facilities. Then there was a change in the federal government. Sheila Copps was good enough to meet with me, had taken a look at quite a bit of the data that had been accumulated at that point, and authorized the Environment Canada labs in Ottawa back in 1996 to do an in-depth study on this product and this technology and to see, under the most stringent circumstances that they could throw at it, how it would come out. Again, to make a long story short, this product was tested over about a nine-month period on a series of urban transit buses. By the way, this is the top testing lab. For any type of testing for emissions and for fuel consumption, testing is done by the Environment Canada labs in Gloucester. It cost \$150,000 to do, by the way, and that money has already been spent, so nobody is looking for anything there in that respect.

We got back a report stating that as per all the information we supplied before that, the product did indeed show an average fuel consumption reduction of 7% and on top of that some tremendous reductions in some of the nastiest things that are coming out of an exhaust stream, and not just the normal ones that you would be familiar with like CO, CO<sub>2</sub>, nitrogen oxide, hydrocarbons and such. We went a lot further than that and did a lot of non-regulated emissions, things like PAH compounds, carbonyls—formaldehyde, acetaldehyde—and of course on top of that, the fuel consumption testing. That report is included in the handout you have.

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This has also gotten us a lot of attention across Canada with other municipal fleets. For example, down in the Hamilton area, just because the fire department was using it didn't mean that Hydro was going to use it. There were fleet managers responsible for each separate fleet who in turn were not going to purchase this product just on the hearsay of another one of their counterparts. They wanted to see it on their own fleet. Over the last five or six years, that's basically what we've been doing, allowing muni-

cipalities to test it, and we've gotten golden report cards right across the board on every single test. We have never had any municipality try the product and not get a positive result. By the way, I want to point out that this has been all public sector testing. It's not like I've got some trucking company out in Cambridge with four trucks who swear by it type of thing. These are municipalities here in Ontario.

If I could also just point out, as you will see in the report, the city of Oakville is using Ontario Drive Clean program standards. You'll notice that how these numbers work is that each vehicle—and I'm sure you're all familiar—has a standard set for it as far as emissions when it's going in for its Drive Clean program, and that's basically a pass. What these numbers here represent is that not only did we pass—passing is a C minus basically—but these numbers are extraordinary in that they take the report cards on these vehicles to an A plus. Not only do they meet the standards, they exceeded them by some tremendous amounts. You will see, for example, that carbon dioxide is 74% less than what the province is mandating for these vehicles.

One of the ones we're particularly proud of, and we see this all the time, is the opacity, the diesel smoke. All diesels, heavy-duty trucks, are tested for that yearly in this province, diesel particulate. You can see that not only do we meet the standard, but it's 60% less than allowed.

In a lot of the material I was reading in your report—and I can appreciate where you're coming from—the way this was written, there's a desire out there to almost think that we have to find an alternative for fossil-based fuels, which I agree with. Eventually down the road we're going to run out of the stuff; maybe not in our lifetimes, but we're still facing the same problem. What I'm saying is that I have a technology that's already gone through the federal government of this country, and all kinds of municipalities that state that this product does what we say it does. We've spent the last nine years basically proving our case, and we've done it very convincingly, I think, with a lot of these fleets. We feel we can address a tremendous number of your objectives in this report and start giving them to you immediately, as opposed to testing this new technology or that new one. We've been around. The taxpayers' dollars have already been spent in significant amounts, not only at the federal level but at the municipal level across this province, to prove that this product is the real thing.

Again with respect to your report, there are some recommendations that were made on page 48 with respect to incentives that should be looked upon—a lot of them, I notice, are from the Ontario Trucking Association—such as that consideration be given to fuel tax reduction, to various fuels that achieve significant environmental health benefits; that winners of provincial government tenders should be required to take a look at a technology like this; school bus programs; your own GO Transit, for example. As far as tax credits, I'll leave that. That's a little beyond me as far as that goes.

Just to give you an idea of numbers, of how much money we're saving some of these municipalities, basically you're looking at about \$30,000 per million litres consumed, based on today's fuel prices for gasoline or diesel; it's kind of a blended price. That's a net figure. That's with me paid for.

It costs less than one cent a litre to use this product. It's mixed at a 1:5,000 ratio, again. We have reports in there that basically say it's a very simple product to use. These are large fuel users, as you'll see, all my customers. They have their own in-house fuelling, they have their own fuel pumps and their own underground tanks. That's basically how we treat the fuel, so it's already in the gas or the diesel as it's being pumped out. You have a 10,000-litre tank underground; 10,000 litres of fuel is delivered. You open it up, you pour two litres of Ferox in, close the lid, end of story. That engine is now receiving the benefits of this technology.

Just to give you an idea of other municipalities, we're in discussions with London, Ontario. We've been dealing with London, Guelph, Cambridge. Also, just to let you know, because this is a provincial meeting, we've just come to an agreement with Hydro One. We will be treating several of their large yards here in the south-western Ontario area, beginning probably in the next 30 days. We are just signing a contract with the new amalgamated city of Hamilton. We used to just have the city, and then the outlying areas were amalgamated, so now the fleet is substantially larger. We will now be treating the transit down in Hamilton, the Hamilton street and rail, which consumes in the area of somewhere around 8 million litres of fuel a year alone.

The Hamilton fleet uses a total of about 12 million litres of fuel a year. We have estimated on a cost analysis that we'll be saving them approximately \$360,000 a year in fuel. I don't think that public entity is any different from any other public entity in that all these fleet managers have a gun pointed at their heads to try to reduce their fuel consumption, reduce costs and at the same time be more environmentally friendly.

I get quite a few comments from these fleet managers that I have made life a lot easier for them because I address both: they have their entire fleet breezing right through Drive Clean, and they're showing less money that they're paying out every year for fuel costs. Another thing is that their complaints from citizens about diesel exhaust fumes, for example, have virtually disappeared, except for things like the Hamilton buses, which were not on it for quite a few years but which are now going to be on it.

So we feel we've got a pretty strong technology here that I think warrants this committee's attention.

**The Chair:** Thank you very much. We have about a minute and a half per caucus.

**Ms Churley:** Thank you. Could I ask you perhaps to be a little bit more specific on what you would like this committee to do in relation to your product, which you're out there selling already.

**Mr Docherty:** I was particularly looking at—for example, in your report there was mention of having the

province own fleets, setting the example in-house, so to speak. There are mentions in here with respect to—the province, for example, is a huge contributor to public transit across this province.

**Ms Churley:** Well, it isn't really any more—used to be.

**Mr Docherty:** Well, it is and it isn't, so to speak.

**Ms Churley:** Isn't.

**Mr Docherty:** Yes.

**Ms Churley:** But continue.

**Mr Docherty:** There are ramifications there. Also, for example, we're all jumping up saying we've got this massive air pollution problem, and we do, that we can point fingers at whomever, but we're all responsible for it. The bigger the fuel user, the bigger the problem you are. It's as simple as that.

I don't know if it's something you can mandate, but at the same time I think if there's an incentive to use a product like this that has gone through all of the most rigorous testing that something like this could possibly go through and come through with a positive result, I think it's something that warrants a good look.

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**The Chair:** Thank you. Mr Hastings.

**Mr Hastings:** Mr Docherty, why hasn't the highly innovative TTC or the city of Toronto implemented this program? Have they approached you, or have you approached them?

**Mr Docherty:** I have approached them, sir.

**Mr Hastings:** And they turned you down, I assume?

**Mr Docherty:** No, not really. Basically, this was just before the city amalgamated a few years ago.

**Mr Hastings:** OK. What about the new city?

**Mr Docherty:** To be honest with you, I have not had an opportunity to get back in here yet, because I was a little put off by the way I was handled prior—I was kind of tossed around like a beach ball, if you know what I mean.

**Mr Gilchrist:** A follow-up, then—the first question a little jocular and the next one serious.

Apropos of that, did I hear you correctly: was it your submission, now that Hamilton has been amalgamated with the suburbs, that the previously reluctant fleet managers in the surrounding environments and all the citizens in those parts of the province will now be the beneficiaries of more efficient and cleaner operation of a broader range of municipal services?

**Mr Docherty:** It's certainly my hope, sir.

**Mr Gilchrist:** It is indeed. And you would characterize your company as a beneficiary of the amalgamation?

**Mr Docherty:** Absolutely, sir.

**Mr Gilchrist:** Thank you very much.

My serious question to you: does the use of your product void any manufacturer's warranty?

**Mr Docherty:** Absolutely not.

**Mr Gilchrist:** OK. Talking about large groups where we could derive maximum benefit, have you approached the OTA? What's the reaction of the trucking industry to your product?



**Mr Docherty:** The problem with the trucking association is that you have to have a central fuelling source for a technology like this. In other words, trucking companies that make a short trip would fill the vehicle at their site from their own underground tanks, and the Ferrox would be in there. The truck goes out on its run. If it has to stop for fuel at any fuel source other than its home spot, then we're kind of defeating the whole purpose. You must have Ferrox in the fuel continuously in order for it to be properly working all the time.

**Mr Gilchrist:** But a fleet like FedEx or Purolator presumably would have short runs and go back to the home yard every night.

**Mr Docherty:** Yes. I'll come back to you on that. The problem is, I'm sort of like a one-man show and I can only spread myself so far. I have been concentrating strictly on the public sector, to be honest with you, because I have to devote my resources to the one area that I'm finding is most responsive, and a lot of it has to do with that federal government tax. That really has got me in a lot of doors, because it kind of gets rid of a lot of the nonsense; it separates me from all the other additives on the market.

Basically, I haven't really had too much success at this point, but then I haven't really put out a great amount of effort. I can tell you that in Hamilton with Dofasco and Stelco, which are two of the biggest polluters in this province, I've been tossed around like a beach ball, just like some of the situations I've been involved in. I go from one department to another department to another department: "What the heck's going on here? Are you interested, yes or no? It's up to you."

For example, I could save a company like Dofasco close to \$400,000 a year in fuel. I said, "It's up to you. Do you want to keep it, or do you want to give it to the oil companies? They're more than happy to take it from you; I can guarantee you that."

So it's just been a matter of where they've been most receptive.

**The Chair:** Thank you very much. We appreciate your coming forward with some new and different information.

**Mr Docherty:** I appreciate your time.

#### GAIA ENERGY INTERNATIONAL

**The Chair:** Our next presenter is GAIA Energy International, Greg Binions, chairman. If you have others in your delegation, please bring them forward with you. As you start, please state your names so they all get properly recorded in Hansard.

**Mr Greg Binions:** My name is Greg Binions. I'm chairman of GAIA Energy International.

**Mr Ross Blaine:** I'm Ross Blaine, project manager for GAIA Energy International.

**Dr Raymond Colledge:** I'm Raymond Colledge, a consultant to GAIA Energy International.

**Mr Binions:** GAIA fuel helps. It's an immediate solution to near-term pollution reduction.

I'd like to start off by thanking you for the opportunity to speak again. We realize that until GAIA is able to develop its market, it will have limited availability to the consumer marketplace. We are planning to see its major penetration initially in the municipal and private fleets. We would like your support to see GAIA fuel used in municipal and provincial fleets as quickly as possible. We would like to see GAIA fuel given the same tax considerations, as a low-polluting alternative, as the other alternative fuels. By doing this, you can show a cost-effective, proactive initiative on Ontario's part to reduce pollution now.

Now I'll explain why we want Ontario's support. GAIA fuel is a liquid fuel that can replace gasoline totally, or it can be used in conjunction with it. The technology was obtained during the Canada-Japan trade mission in 1999. GAIA fuel benefits the environment and consumers by burning cleaner than gasoline. GAIA fuel is more environmentally beneficial than propane and gasoline in head-to-head testing. Environment Canada, which has done extensive testing, says our fuel shows statistically significant reductions in major automotive pollutants. The University of Hong Kong has also done testing which corroborates Environment Canada's tests. GAIA fuel corresponds with the World-Wide Fuel Charter categories TLEV and ULEV, which we'll go into a little bit later. Basically, GAIA fuel helps by providing consumers with a high-efficiency, lower-polluting and safe-to-use fuel.

The benefits of GAIA fuel: lower emissions when compared to regular gasoline. Testing has demonstrated reductions of up to 88.1% in carbon monoxide, 83.3% in hydrocarbons and 9.7% in carbon dioxide. These are all results obtained by Environment Canada. Because GAIA fuel burns cleaner than regular gasoline, it should provide potentially lower maintenance costs.

Improved fuel consumption: compared to regular gasoline, tests have shown that GAIA fuel improves fuel consumption by up to 10.8%. Again, that was done by Environment Canada.

GAIA fuel can be mixed with gasoline to ensure reduction in emissions and increase octane.

Current experience has demonstrated that no modifications are required to vehicle OEM parts or operating settings. GAIA fuel requires no changes in retail tanks and pumps or distribution facilities.

**Dr Colledge:** I'd just like to say something about the product testing and the results that have been obtained. Extensive emission testing has been done in Canada on this fuel. Environment Canada has a fully certified world-class automotive testing centre in Ottawa that specializes in the testing of all vehicles that use some form of combustible fuel. In tests on a number of different vehicle types and ages, significant reductions in emissions, as we've just referred to, have been obtained compared with gasoline. These are detailed in appendix A.

In addition, we've seen a significant improvement in fuel consumption. In one particular exercise, the vehicles tested were a 1997 RCMP propane and a 1998 GAIA

fuel Ford Crown Victoria. Using Environment Canada's UDDS emission cycle, which corresponds to urban driving, we were able to get a direct comparison of GAIA fuel and cold propane, each of them relative to gasoline in what is generally considered to be a vehicle that represents the largest proportion of the police vehicle fleet in North America.

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The results show that whereas propane in properly tuned cars contributes to an improvement in smog formation through a reduction in hydrocarbons, it doesn't really do anything for carbon monoxide emissions, whereas GAIA fuel not only has a beneficial effect on smog formation but very dramatically reduces carbon monoxide emissions.

I'd like to put that in perspective, because although the problems associated with smog have been well publicized, the hazards associated with carbon monoxide emissions have not. Yet carbon monoxide is probably the most insidious of all the emission pollutants from vehicles as it is totally invisible and has no smell. In addition, 95% of all the carbon monoxide produced in urban areas can be attributed to motor vehicles. The table shows this comparison, and you can see that whereas propane had little effect—actually, it increased the carbon monoxide slightly—GAIA fuel reduced the carbon monoxide very substantially. Carbon dioxide and total hydrocarbons were more or less the same for the two fuels. These results are given in more detail in appendix B, along with some Ontario government Drive Clean testing results, all of which show consistent reductions in major emissions.

So all the current testing has shown that GAIA oxygenated fuel reduces emissions, particularly carbon monoxide and hydrocarbons and so on, but also reduces carbon dioxide, which, as you know, contributes to global warming. The situation is not quite so clear on  $\text{NO}_x$ , but in some instances we have seen a reduction in  $\text{NO}_x$  in highway driving simulation conditions.

In recent years, as I'm sure this committee well knows, an increasing amount of attention has been given to the need to lower the sulphur content of gasoline, not only to reduce the formation of sulphur dioxide in exhaust emissions, but also to address the concerns of the vehicle manufacturers that sulphur poisons catalytic converters, thereby reducing their effectiveness to deal with all exhaust emissions. We feel this is another area where GAIA fuel can make an important contribution to the environment, because whereas Ontario gasoline contains anything from 200 to 790 parts per million of sulphur, GAIA fuel has a sulphur content of less than 10 parts per million.

Testing data from Environment Canada, Drive Clean, independent labs and the University of Hong Kong are all included with this information package, and the results cover a wide range of new and old vehicles, various makes and different engine types. All the tests were done on the basis of comparing GAIA fuel with gasoline.

The following data demonstrates GAIA fuel's improvement over gasoline in tests conducted by Environ-

ment Canada both on an old vehicle—a Plymouth Acclaim—and a 1998 Crown Victoria. In the case of the Plymouth Acclaim, the vehicle actually didn't pass Ontario Drive Clean testing using regular gasoline but did once GAIA fuel was used. Also, laboratory tests commissioned by fuel licensees in Japan and in Canada have not indicated any corrosion problems with the GAIA fuel blend.

As part of the HELPS initiative—and we'll go into that shortly—a comprehensive test program is being conducted in Canada by GAIA Energy, and we're proposing to work with the University of Toronto and the University of Windsor, the Canadian Vehicle Manufacturers' Association and individual auto manufacturers to develop further information on the materials compatibility of this fuel for compliance with North American vehicles. As well, this will confirm GAIA fuel under the World-Wide Fuel Charter category 2, which corresponds to the California TLEV category, and also as category 3, which corresponds to the ultra-low-emission California standard. An overview of the applicability of this fuel to the World-Wide Fuel Charter can be found in appendix C.

The next two pages cover some of the results in detail. Now I would like to pass you to our associate, Ross Blaine.

**Mr Blaine:** As you can see from the pages that Raymond just skipped over, GAIA has shown significant reductions in pollution over gasoline. Further, we are entering into a program called GAIA HELPS. Through that program, GAIA International is in the process of launching, first in Ontario and then to the rest of North America.

We know that GAIA fuel is a high-efficiency, low-polluting and safe oxygenated fuel. As I said, in HELPS, "HE" stands for high efficiency. Laboratory testing on dynamometers at Environment Canada in Ottawa has proven that GAIA fuel improves mileage by up to 10.8%. Thus, when the consumer is purchasing this product, they will get a better value.

Higher efficiency: a further proposition will be shown through on-road testing, which will be happening in the spring of 2000. This on-road testing is intended to prove that properly manufactured GAIA will also reduce maintenance costs as well as fuel costs. Tied to the on-road testing that will be undertaken with an initial fleet of 30 police vehicles, averaging about 100,000 kilometres a year, GAIA will also be submitting the fuel for materials testing with Canada's National Research Council. These tests, again, will be supervised by Dr Colledge, a world-renowned expert on oxygenated fuels, and Mr Carl Wintermeyer, retired director of R&D and new business development for General Motors.

The "LP" of HELPS stands for lower polluting. GAIA has well-documented information that our product is lower polluting. You have seen it in the previous presentation and we have included other information with this package. Copies of all that information are available, and it works.



The "S" factor in HELPS stands for safety. Through the testing conducted at the Universities of Windsor and Toronto, GAIA Energy will assure consumers that GAIA fuel is of the highest quality, provides exceptional performance and is more environmentally friendly than gasoline. High efficiency and low pollution are important, but safety is paramount for any new fuel, and GAIA International is proving that.

The test team at GAIA International believes that the use of this fuel will assist in achieving many of the objectives set out in the Kyoto accord and in the World-Wide Fuel Charter. As Raymond mentioned earlier, discussions are now underway with the Canadian Vehicle Manufacturers' Association, supported by engineers of the Big Three automakers. This testing is scheduled for the spring of 2002, and our purpose is to prove that GAIA does help. It is an immediate solution to the near-term reduction of pollution.

Without further ado, I will turn it back to Greg to talk a little bit more about the sulphur content.

**Mr Binions:** Air pollution affects everyone. Every day, the average adult breathes over 12,000 litres of air. Children breathe more air per unit weight and are thus more susceptible to air pollution. The majority of people in North America live in areas where urban smog, carbon monoxide and other toxic pollutants pose serious health problems. These concerns can stem from either short-term or long-term exposure to air pollution.

Although significant reductions in exhaust emissions have been achieved by the auto industry in recent years, vehicles continue to be a major source of the pollutants that affect air quality. Two factors contribute to this situation, the first being that the reduction in emissions for each individual vehicle has to be weighed against the continuous increase in the vehicle population. The second factor, which you may not be aware of, is that emission control systems seldom last the life of a vehicle, and 80% of vehicle emissions are thought to result from the 20% of the vehicle population that is old. Our fuel resolves many of these problems.

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The major pollutants by volume are carbon monoxide, hydrocarbons, nitrogen oxides and carbon dioxides. In addition, some of the other pollutants: sulphur dioxide, benzene—which is a known carcinogen which is found in gasoline—toluene and xylene; for every one of these components, GAIA's emissions are lower than gasoline.

GAIA fuel is a clean-burning alternative to gasoline and consists of a blend of naphtha and various oxygenates. It was developed in Japan and is sold there in over 300 stations; it has been for two to three years. It will shortly be marketed in other countries as well.

GAIA fuel is a liquid fuel, and unlike other alternative fuels, it can be used just like gasoline, as I mentioned before.

All of the pollutants that we've talked about above, such as sulphur, benzene, toluene and xylene, which are present in gasoline, are much lower in GAIA. One of the reasons is that GAIA fuel contains a very special blend of

naphtha. We've taken great care within our formulations to select a grade of naphtha that is relatively free of these products. In a typical case, gasoline has aromatics of 30% to 40%; our aromatics are under 10%.

**Mr Blaine:** In closing, we realize that GAIA, because it's an oxygenated fuel, will take a long time to mature in the consumer market. We do believe, however, that it can get major penetration in the fleet market. In particular, we would like to see it going into marketplaces such as governmental fleets where environmental pollution reduction initiatives are looked for. It is cost-effective. It gives Ontario and our municipalities an opportunity to have a cost-effective, proactive initiative on Ontario's part to reduce pollution now.

Thank you for your interest. We very much appreciate it. We welcome your questions.

**The Chair:** We have about a minute left. There's hardly time for either caucus. Do you want to make a quick comment?

**Ms Churley:** It's a question. Thanks for coming back again. Has your company approached any of the major oil companies to have discussions about perhaps injecting the fuel at the refinery? Would that add to the cost at the pump?

**Mr Binions:** To manufacture our product is slightly more than, say, regular gasoline, but it gives a 10% better fuel consumption. In addition, it's a premium gasoline. But our goal, in co-operation with the Ontario government, is to be able to market it at the regular price rather than at a premium price, at which it currently markets.

Some of the oil companies, because we would be a major competitor to them, aren't being the most helpful, whereas some of the larger players on the oxygenate alcohol side are actually being quite helpful.

**The Chair:** Thank you very much. We appreciate your presentation and coming forward talking about a relatively new product.

#### SKY GENERATION INC

**The Chair:** Our next presenter isn't on the schedule; they accidentally got off the list. It's Sky Generation Inc, Glen Estill.

For the committee's benefit, Canwindpower, Chris Kuntz has been delayed. I'm not sure if he'll make it in time while the committee is sitting.

You have a total of 20 minutes for your presentation. What's left over of your actual delivery will be divided between the caucuses. For the sake of Hansard, please just state your name clearly. The time's all yours.

**Mr Glen Estill:** I'm Glen Estill. I'm with Sky Generation Inc. I'm a wind power developer looking at building windmills in Ontario to generate electricity for sale.

Here's just a little bit on my background: I am the co-founder of a computer distribution company. I co-founded it 20 years ago. It's EMJ Data Systems, which is a publicly listed Toronto Stock Exchange company. I left that 18 months ago to pursue my interest in starting a wind power business because I see parallels to the

computer business in 1980, when I joined the computer business. The wind business seems to me to be a very similar condition, about to take off, much like the computer business did in 1980. In the last year and a half, I've been very active on the Ontario Wind Power Task Force. I know that you've had a presentation from David Boileau and other members of that task force, as well as members of the Canadian Wind Energy Association. I know that you're going to have a presentation from them at some point in the future and see the copy of their final report. I can only suggest that you look at that very seriously. That would certainly be, I think, the number one thing that you could do for the wind business in Ontario.

I was also elected as the vice-president of the Canadian Wind Energy Association in November, so I'm new on that. I have a bachelor of economics and a master of business administration.

The work of the committee is absolutely, incredibly important. I know that we're all aware of the environmental issues, the climate change, the air quality issues, and so on. I'm sure that's a good part of the reason that the committee was struck. But the committee is also quite possibly going to be responsible for the economic viability of the province in the future. I'll draw your attention to a few things.

One, there's a book that I think should be required reading for members of the committee. It's called Hubbert's Peak: The Impending World Oil Shortage. Hubbert is a geologist who, in 1956, predicted that the production of oil in the United States would peak in the year 1970. Well, production of oil in the United States peaked in the year 1970. This book goes through, in layman's terms, and talks a lot about why it is that you can predict that. It's basically all geology. You can take a look at all the land that has already been drilled, the land that they know has certain geologies, that just is not going to have oil in it, the percentage of oil that's already been removed from the areas that are already there, and it becomes a reasonably predictable thing to do. Kenneth Deffeyes is the author of this book. He took Hubbert's principles and applied them to the world oil situation, and concluded that world oil production will peak in the year 2006. This may not come to pass. We don't know for sure that's the case, but it might. If it does, then the work of this committee is all the more important, and goes much beyond just environmental issues.

I've also handed out a couple of articles to you. One is called "Methane Madness." It's about the impact of the rush to set up gas generating plants in the US, and the impact that will have on the natural gas marketplace. Also, I've handed out a couple of articles that I picked out of the *Globe* just a couple of weeks ago. One says the gas grid needs huge investment by 2015. It says that the demand for gas should rise from 23.3 trillion cubic feet to 31.3 trillion cubic feet by the year 2015. The thing I've always heard is, "Where are you going to get this extra gas? It's going to come from the Arctic, right?" The other article was about the Mackenzie Valley pipeline. The

Mackenzie Valley pipeline that they're proposing is going to carry 1.9 trillion cubic feet a year. So it's carrying about 25% of the increase in demand, and is not accommodating any of the decreasing production that we're seeing in the western basin and in the lower 48 states as the natural gas reserves are depleted. So I think it's a real issue that needs to be considered and that we need to prepare for—and that we need to think about moving toward a more sustainable energy environment, particularly for a province like Ontario, which does not have its own reserves of fossil fuels.

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Deregulation of the electricity market is a tremendous opportunity to move Ontario to a more sustainable energy environment. In the market rules that were designed, there were two very good policies that were put in place. The one is they've defined wind as a must-run generator. That means that the grid will always accept all of the power that is generated by a windmill. Other generators will have to bid their price in. If they don't have the price at the right level, the grid may decide they don't want their power for that hour or that half day or whatever, whereas windmills, if they're generating, and the same would apply to water power, and must generate, then the grid will accept it. So that's an important rule that was put in place.

The other one is perhaps less important but also significant, and that's the ability to market green power. I do think we need to be cautious about green power. It is a voluntary means whereby the consumer can elect to pay more to buy power from a non-emitting source. In most jurisdictions where this has been tried, you typically have an uptake of between 1% and 3% of the population, but most of the population is not buying all of their power from green, so you're not getting anywhere near 1% to 3% of the load. You're getting maybe 0.25% to 1% of the electricity load taken up by buyers of green electricity. Exceptions to that can be governments. The federal government has announced that they'll buy 20% of their power from green sources by the year 2005. There have been some governments in the US that have also taken that kind of leadership position. The ability to do that is important in deregulation, but in and of itself it's not adequate to green up the electrical grid in Ontario.

One of the key things I think we need to get past—I'm a businessman. I have an economics degree. I've been in business all my life. I'm a capitalist. I'm a believer in free enterprise. But the first thing I realized, after being in this business for just a few months, is that energy is not a free enterprise business. It is very much influenced by governments in this country. If you look at any major energy initiative that we've ever had in this country, government has been at the forefront of it. Whether you go to the starting of Ontario Hydro and the Beck power generating dam at the turn of the century, the Trans-Canada pipeline to bring natural gas to the province, the founding of Atomic Energy of Canada to develop the Candu system, the building of the Candu reactors using Ontario Hydro, the starting of the tar sands project with



investment from the province of Ontario, Alberta and the federal government, Hibernia, which had federal government money equity investment in it, every major energy investment that has ever started in Canada has been started and initiated by government.

What I wonder is, if that is the case, the only way to truly level the playing field is to give renewables the same shot. If ever there was a time that it's needed, it's when the air is in need of cleaning up and when climate change is an issue. I think it's something we need to get past, the belief in total free market, and move into directing the way we want to generate our energy and recognizing some of the externalities that may be involved.

I'm going to try to keep this fairly brief, but you're probably going to say, "OK, what do we do?" One is that the government needs to set goals. There needs to be a goal that we want a certain percentage of our power in the province to be coming from wind; I would say 10% or 5% by 2010 or something like that. You need to pick a number. It needs to be publicly stated by the government and publicly supported in government ministries through policy development.

I can't tell you all of the policies that will need to be developed. I heard just last week that there's a new, second round of Market Design Committee meetings to talk about what the next stage of electricity restructuring is going to be. In particular, one of the issues they're going to talk about is capacity credits. What that essentially means is that the independent market operator will pay generators to build capacity. In other jurisdictions, sometimes they simply dismiss wind because wind is not an on-demand capacity where you can turn a button and turn it on, as you can with gas, so they don't pay wind to build capacity. They pay gas to build capacity. Of course, what that means is you end up with extra capacity on the market, which drives down the price of power, which makes it less viable for windmills to get built in the first place.

So there's a whole bunch of policy issues that need to be protected and looked at by government on an ongoing basis. There needs to be a strong statement by government that we're interested in supporting wind, we're going to support wind, and we're going to make sure that all of the policies that get put into place are going to make sure we head toward that goal.

You have to realize that in the province of Ontario right now there are probably five independent wind power developers, maybe eight. It's a very small business. If I looked at all the various committees that I could sit on—I sit on the board of directors of the Canadian Wind Energy Association; I need to have input on the Ecologo certification process; there's the GEO group, the Green Electricity Options group; there's the Market Design Committee—I could spend all of my time doing nothing but trying to make sure policies are made right, and I'd never get any windmills built.

So we lack resources compared to the gas business or OPG or British Energy or some of the big boys who have

existing resources in place. We need the protection and the support of government to say that wind can make a significant contribution to the development of the electricity grid.

The main one is a policy goal, a public statement, hopefully with all-party support, that wind is important and that we want to hit a certain goal. The main market mechanism to get there is a renewable portfolio system. I believe you've heard about that in other presentations, so I won't touch on it too much, but you can ask questions if you like.

There are a bunch of characteristics of wind that are highly desirable in Ontario. Ontario is still a winter-peaking area. The demand for electricity in December-January-February is 7% higher than it is in June-July-August in the province of Ontario. Although the peaks are high in August and July, the overall averages are higher in the winter in the province of Ontario. Wind generates most of its power in the winter. In addition, the reason we have winter peaks is because it's the heating season. Do you know what? When it's windy out, you need more heat because the wind is sucking the heat out of the buildings. So wind matches up very well with the peak winter requirements on windy days.

So there are a bunch of very desirable characteristics of wind that make it important to have as a key part of the grid. The wind industry, and I know you've heard this, has been growing by 30% to 35% a year worldwide. If we had the same amount of power capacity in Ontario as they have in Germany today, we'd be getting 13% of our power from the wind. That would cut our fossil fuel use in half.

With wind, we don't need to think small. Wind can be a very large resource for the province of Ontario that can be a very big part of the solution. We just have to make sure we set the right climate, make sure our policies don't do things that prevent the development of wind and, hopefully, we can see wind as a major part of the solution to climate change and to the emissions issues in the province.

I think that's all I have. Are there questions?

**The Chair:** Thank you very much. We have three minutes for each of the caucuses. Mr Hastings, I think you were signalling earlier.

**Mr Hastings:** How would you prioritize, for the wind energy industry, what is needed in terms of pricing? You talk about the green power option, of consumers having to pay a little—it's been advocated that there should be a bit of a surcharge there to assist the wind industry. That's on the retail side. On the other side, we've had advocates say that the surcharge on the stranded debt should not affect renewables, that there should be some kind of market-based incentives for renewables, whether it be a flow-through share or whatever types of financing, rebates, those sorts of thing. What do you think is the most important: the investment side, to get in wind more critical infrastructure companies here, or the retail side, the selling, the consumer side?

**Mr Estill:** Generally, in terms of incentives, what has been found worldwide—in California, in the early- to

mid-1980s, they had an incentive put in place to build capacity. What that did was everybody went out and built capacity and didn't worry too much about whether it worked very well, so the windmills didn't produce much power. Essentially, it was a poor design. So generally what is recommended as far as incentives is to make an incentive that rewards production to make sure the windmills that are built are well-maintained, operating and so on.

I would say that the biggest incentive that should be set up is a renewable portfolio standard, which would require all market players—retailers, local distribution companies and major power buyers—to buy a certain percentage from renewables.

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**Mr Hastings:** The other stuff will fall in place, you believe?

**Mr Estill:** Yes. If you have a renewable portfolio system, I think you have a good chance of having a pricing environment that allows wind power to develop in a significant way.

On the debt recovery charge, yes, I know that's been an annoyance in the industry, because it's been the view that, "I'm building a windmill. I wasn't responsible for building a nuclear plant, so why is my customer going to have to pay that off?" I think there's some logic there, but at the same time I understand the taxpayers need to pay off their investment. There's a debt that has to be paid somehow, and I guess we've decided it's the electricity buyers who are going to have to pay that.

**Mr Hastings:** Are you familiar with Indel, a company in Mississauga in the mid-1980s that developed and manufactured vertically integrated windmills, but because of technical problems the thing failed?

**Mr Estill:** I'm not familiar with them; I'm newer to the industry than the mid-1980s. Generally speaking, the technology has matured considerably, so that windmills of European design are achieving availability rates of 98%, which means they're available to generate power 98% of the time.

**Mr Hastings:** That means we have to import this product forever?

**Mr Estill:** Good question. The answer is no. If you have a strong wind policy in Ontario that has some length to it, I would say there's a good possibility that people will want to build here. It's a very logistics-intensive business. It does not make sense to build a steel tower in Denmark and ship it to Ontario. It makes a lot more sense to build that steel tower here. The same thing goes for blades. It's big, heavy stuff to move around, and it makes sense to build it locally. But the European industries are going to build in a jurisdiction that has support for their products. It's definitely an industrial development opportunity and a considerable one.

**Mr O'Toole:** I just want to comment—it's one of the areas I'm quite interested in because of the OPG initiative at Pickering. Part of that—I think it was the generator itself—was actually built in Ontario. Part of it was,

maybe the blades. I was there at the opening. I should know.

Just reading this brochure—I don't know if you've seen this one; it's from Wind in the Netherlands.

**Mr Estill:** Yes.

**Mr O'Toole:** It talks about offshore and the huge initiatives. They're pretty well developed, and they've positioned themselves to market the technology and the knowledge. It's clear that's what this brochure is about; it's trying to sell us some blades or something.

Which state has the 10% in 2010, that 10% will be sustainable in 2010? Isn't that Texas?

**Mr Estill:** The Canadian Wind Energy Association is talking about 10,000 megawatts by 2010. It's called the 10 by 10 policy. That's a recommendation by the Canadian Wind Energy Association to government to set this as a policy guideline, which of course would mean probably 3,500 megawatts in Ontario by 2010; we'd be just pulling our weight, not any more. So there's that. Denmark is currently getting 17% of its power from wind and is shooting for 50% by 2030.

You can really think big with wind. In Europe they're doing a lot of offshore wind development in the Baltic and in the North Sea. Lake Erie is at a shallow enough level that we can do considerable development in Lake Erie and parts of Lake Huron.

**Mr O'Toole:** There are two wind farms planned for Ontario, one for the Bruce area and one for southwestern Ontario—I don't know who is doing it—and there's one for Toronto too.

**The Chair:** They're also talking about one in Prince Edward and one along the Toronto lakefront. I just have one quick question I'm curious about. I'm told you require a crane to set these up.

**Mr Estill:** Yes.

**The Chair:** While we can't get wires or it's very expensive to take wires into a remote location, there are no cranes. Is any engineering looking at how we can raise one of these windmills without a crane or a helicopter?

**Mr Estill:** Yes, there's a company in Nebraska, I believe, that is working on a craneless erection tower. It would tend to be for the smaller windmills. I think they're looking at 600 kilowatts, which is a bit small on the commercial scale today. But I think they've only put up one or two towers, so at this point I think it's still very much leading edge.

**The Chair:** There's such an opportunity for wind power in remote locations.

**Mr Estill:** Certainly in remote locations wind development is quite interesting, because in certain places they're flying the diesel in to run the generator, and it can be costing \$2 a kilowatt hour.

**The Chair:** Thanks very much for your presentation. We appreciate your coming forward.

#### CANWINDPOWER

**The Chair:** Our next presenter is Canwindpower, Chris Kuntz. There is a total of 20 minutes for you. You can make your presentation. What's left over we'll divide



up between the caucuses for questions. Please state your name for the sake of Hansard as you start.

**Mr Christopher Kuntz:** My name is Christopher Kuntz. Our company is based out of North Bay, Ontario. It was suggested that I attend this hearing for the sole purpose of making sure that some of the people—clearly not all of the people, but some of the people—of northern Ontario were represented or had a bit of a voice.

The first page of my presentation is somewhat informal; it's just for your own personal perusal. I think what's really important to note about what our company is doing is that we've created two very large geographical triangles—you'll notice at the bottom of our first page—within the province of Ontario: in the region of Sault Ste Marie to Honey Harbour through to North Bay, which essentially encompasses a great part of Georgian Bay and Manitoulin Island; and in addition to that, another triangle goes from Sault Ste Marie to Timmins and over to Thunder Bay, covering the east shoreline of Lake Superior.

As the name of our company would imply, we are specifically focused on wind power. The company is two years old. We have a rather small but feisty board of directors, and we really enjoy the challenge of addressing the questions and concerns of people in northern Ontario.

Page 2 highlights some of the goals of our company. In the year 2002 we anticipate having 10 anemometers up in these geographical regions, five signed land leases and the same, if not more, power purchase agreements. It is very ambitious but not impossible, given the climate these days with the privatization of the electricity market.

The year 2003 would have us actually submit some of our environmental assessments for these said properties, at which time we would have pooled together a considerable amount of resources financially to actually begin the development and planning of the wind farms.

The year 2004 would have us actually doing the construction, and the year 2005 would see us having our first 50-megawatt wind farm built in one of these two regions, more than likely the Georgian Bay area, given its proximity to the larger markets.

Our friends at Great Lakes Power over in Sault Ste Marie have indicated that they have a long-term—when I say “long-term,” I mean five to 10 years—futuristic plan to get themselves into wind power as well, and we've notified them that we would love to be a partner.

The initial parcel of land we're looking at is between the Moose River bridge on Highway 69, at the junction of Highway 12, and Oastler Lake Drive south of Parry Sound. If you've ever driven that section of highway, you would know that there's a considerable amount of electricity passing through the area and to step up or step down from the grid would be relatively inexpensive.

The model of business under which we operate is a corporate co-op. Essentially, what that means is that we have set a cap on the amount of shares that any one party can control within the company, and that would be 20% with a minimum buy-in of 5%, encouraging the co-operation of and between many companies, governments,

utilities and corporations from all over the world to actually come together and collectively build these large wind farms. It would be quite impossible, I think, to ask any one individual to put the money up to do such a large project.

1630

Moving on to page 3, we work specifically, and spend a lot of our time, focusing on First Nations and the co-operation with First Nations in the province of Ontario. What we've said to many of the chiefs and councils in northern Ontario is, “Show us the land. If we can prove to you that there's a wind resource and if we can prove to our investors that there is sufficient wind to have a decent return on your investment, then we would gladly engage in a 50-50 partnership with the First Nations.” The obvious advantages of that are that if you build a large wind farm, you have to have a warehouse and you have to have technicians to maintain the machinery. That would bring jobs and employment into regions of Ontario where quite literally the unemployment rate is somewhere between 20% and 40%.

But the creation of jobs isn't enough in itself; we wish to run the wind farms like a business. If we put an anemometer up in a region and clearly there's not enough wind to make it economically viable, then it's a no go. That's intrinsically important for us.

Under the Clean Development Mechanism and Joint Implementation program with the feds, there's clearly a commitment on the part of the federal government to make sure that we move forward with renewable energy projects at various sizes and scales. We certainly plan to capitalize on that and make sure that foreign multinational corporations are brought into our projects.

To summarize, in the event that we're not able to draw investors into the province of Ontario—and more specifically northern Ontario, because that's where our focus is—we may indeed actually have to look beyond our own borders and work with governments from other parts of the world, more than likely emerging economies where there isn't any infrastructure already for electricity, and wind power would, in that instance, make sense; maybe some kind of co-operation or joint venture with the government of Canada and the government of the developing country.

Hard to believe, all from North Bay, Ontario.

On the fourth or fifth page I made a list of some of the companies that we've been in contact with, companies that either we've approached and expressed an interest in forming a partnership with them, or vice versa.

We have a pretty warm reception from a lot of the municipalities in northern Ontario. To say that there would be a plethora of questions from them about how we're going to do this would be just a mild understatement. Where we seem to have our warmest reception to date is actually with the First Nations of northern Ontario. The whole notion of using renewable energy seems to be very much in keeping with their belief that they are the keepers of the earth. Beyond that, they see the opportunity to make money and have jobs, whereas in

other larger municipalities and cities, the planners and the people who sit on the local hydro company board kind of look at you and they go, "Well, we already have enough electricity. Why do we need renewable energy as well?" And that's perfectly normal. That's OK. We're anticipating, though, that as the price of electricity goes up, there will be an increase in interest in renewable energy, assuming, that is, that the price of electricity goes up.

We made up a quick recommendation list for a wind strategy. What we're hoping the government of Ontario would potentially do for the people who are trying to build up this renewable energy industry in the province at the moment is set up standards and safety for wind power operations.

You'll have to excuse me if anything I say has already been done. My knowledge of political standardizations within Ontario is somewhat limited due to the amount of time I've actually been in the province. I can tell you more about that after.

A less stringent environmental assessment for wind power: in our opinion, the power is already clean, bar the fact that there is visual pollution from putting them up along the horizon.

Registration of all companies in Ontario producing electricity, specifically wind power, somewhere that people who are interested or involved in wind power in the province can call on one another to find out who's doing what, what's being built, where, and what sort of level the construction or development is at.

A dollar-for-dollar match from the province of Ontario to meet recently announced federal incentives: the subsidy from Ottawa, as you are probably well aware of.

A clearly defined date by which these subsidies would cease to exist: that is to say, the day there is full free-market competition in the province, at which time consumers can then say for themselves, "This is the type of electricity I prefer" or "This is the type I do not prefer."

A commitment from the province of Ontario to ensure that 50% of wind farm development is indeed in northern Ontario: that's a somewhat biased request, given the fact that most of the people on the board are from northern Ontario. I'm from northern Ontario myself—a bit biased. We need the jobs and the economic diversification, so that's why.

A commitment from the province of Ontario to give First Nations a priority in this development, given the fact that over the last two years, as I see it, they are indeed the people who have said, "Yes, we'll sign the land lease, we'll sign the power purchase agreement, we'll do all of these things with you, Mr Kuntz, as long as you ensure that we get some jobs and a little bit of money out of the deal and aren't just left off on the backburners."

The last couple of pages are just a copy of our company brochure. It's somewhat humble, outdated and needs to be revised. There's a quotation from one of the First Nations that has gone forward with actually setting up an anemometer on Parry Island, and that's the Wasauksing First Nation. They've contracted our com-

pany to write up a wind data report for them, which will then be presented to some of the companies we deal with.

The last page is a letter that was actually sent to the city of greater Sudbury, which to date, out of all the municipalities in northern Ontario, has actually shown the most interest in building a large wind farm. Just yesterday, I was in Sudbury having a meeting with one of the gentlemen who sits on the board for this task force to build a large wind farm in Sudbury, and yet again I was astounded by the drive and the movement forward in that area to go ahead with the planning and implementation of such a project. I think it would do well for the city of Sudbury, considering the legacy of pollution that went on many years ago in the mining industry. Of course, we all know it's a much cleaner operation these days, but it just does very well for the image of the city in general.

That's all I brought with me today.

**The Chair:** Thanks very much. We have about five minutes. Mr Hastings.

1640

**Mr Hastings:** What is your realistic, conservative estimation of the capital that would be available from First Nations reserves in northern Ontario, considering that they get monies out of the Rama gaming agreement and monies from the feds on a number of fronts? What kind of seed capital do you think they have?

**Mr Kuntz:** Realistically, I think that if they were to engage in the development of a large-scale wind farm on their lands—and when I say large-scale I'm talking about 50 megawatts—the cost of building such a wind farm in today's market could range anywhere from \$75 million to \$95 million, depending on how much of a grid extension needed to be made to get the power from the farm to the grid. There are a lot of things that could determine the price difference.

I think it would be realistic to assume they could at least come up with 10% and might be able to finance the rest for their part of a 50-50 joint venture.

**Mr Hastings:** Reserves are also exempt from federal taxes, right? If a company or co-op is set up, as you're looking at, and you have an operation on reserve lands, as I understand it, you do not pay federal corporate tax, you do not pay a whole series of federal taxes that a company that's set up on non-reserve lands would.

**Mr Kuntz:** I personally haven't studied the aboriginal tax laws of Canada, but from what I gather based on hearsay, yes, that is the case.

**Mr Hastings:** What specific kinds of investment incentives do you think your kind of organization requires—not subsidies, because this government isn't in the subsidies business, unless it's in an area we haven't ferreted out. We generally got out of the subsidies/grants game years ago. We're looking at market-based approaches to trying to help you if we can—not just your type of organization but renewables in general.

Have you given any thought to the type of investment incentives, aside from what you normally get from angel investment? A flow-through share arrangement is one of



the things I have asked other interests about, to see what their thinking is on that.

**Mr Kuntz:** I don't know. As soon as I hear flow-through shares, I get a little scared. I was a geologist for eight years, and I saw an awful lot of flow-through shares.

I know there are benefits to using such a share system. Preferably, the way we see it, we would like to raise the capital privately to at least 50% of the value of the proposed wind farm, after which time we would not hesitate to go to a bank, to a lending institution and say, "Look, we've raised this much capital, we have the property, we have all the interested parties together. We've proven there's a resource we can tap into," and from that point just let the economy determine whether our electricity is economically viable.

**Mr Ouellette:** I think there are around 35 northern communities, mostly First Nations, that are based on diesel generators. Do you have cost comparatives for converting? I know a lot of these municipalities would be very hard-hit this year, because the winter ice road situation is not good for them. They don't have the weather conditions to provide the secure base so they can proceed with the roads. As a matter of fact, they're about a month behind. What that means to these municipalities is that they can't get diesel fuel or any other supplies in unless they're flown in.

Do you have cost comparatives to convert these diesel locations to wind power to help supplement it?

**Mr Kuntz:** Once again, it depends on the number of people in the community, it depends on whether there is high elevation, high land, within close proximity to the community. There are a lot of variables. I can give you what I feel is an estimation based on what I've read. From what I can gather, most of these communities that are on diesel, and having spoken to some of the economic development people within the First Nations, some of them are paying, after maintenance fees and fly-in fees and haulage fees for the fuel, anywhere from 22 cents to 28 cents a kilowatt hour on diesel. I don't know if that's correct or not. Once again, that's hearsay. That's what I have been told.

But I think that if you took a decent-sized turbine, say, a 250-kilowatt unit, and managed to hook it up to 200 or

300 houses and a community centre, even with some of the shoddiest wind conditions, you should be able to get it down to a cost lower than what people are paying for diesel at the moment. That's assuming you don't have to run an extension that's 10 or 15 kilometres long from the turbine itself to the community, because that's where you really incur some very significant costs.

**Mr Ouellette:** Yes, most of them are pretty close, and 200 or 300 houses would be a rather large community to be looking at.

**Mr Kuntz:** You can go with a smaller machine.

**Mr Ouellette:** With a lot of them, if you go to 100 houses or 100 units in these areas, it's fairly large at that time. Would it be cost-effective in order to convert them over?

**Mr Kuntz:** Yes, of course, because you would leave the diesel genset there. When you don't have wind, the diesel genset kicks in. You're never going to be completely free from the burden of this diesel crisis.

**Mr Ouellette:** I think one of the points I'm making here, which was indirect, was that there are some opportunities out there for people like yourself to look into for communities like this that—

**Mr Kuntz:** I've been invited on more than one occasion to hop into a Beaver or an Otter to go and visit some of these communities. I lived in the Yukon for eight years, and my flying in small bush plane days are hopefully coming to an end. But if a community said, "Jeez, Mr Kuntz, thanks for faxing us all that data, thanks for answering all our questions, thanks for sending a technician out. By the way, we really want you here to survey the land for us," then I would probably do that.

**The Chair:** Thanks very much. We appreciate you coming forward with your presentation.

**Mr Kuntz:** With pleasure.

**The Chair:** Are there any other comments from committee members prior to adjournment till tomorrow? Hearing none, then we are adjourned until 11 am tomorrow in Ottawa, Crown Plaza Hotel, ballroom C. The select committee on alternative fuels now stands adjourned.

*The committee adjourned at 1648.*











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of Ontario**

Second Session, 37<sup>th</sup> Parliament

**Assemblée législative  
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Deuxième session, 37<sup>e</sup> législature

**Official Report  
of Debates  
(Hansard)**

Wednesday 30 January 2002

**Journal  
des débats  
(Hansard)**

Mercredi 30 janvier 2002

**Select committee on  
alternative fuel sources**

**Comité spécial des sources  
de carburants de remplacement**



Chair: Doug Galt  
Clerk: Tonia Grannum

Président : Doug Galt  
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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Wednesday 30 January 2002

Mercredi 30 janvier 2002

*The committee met at 1102 in the Crowne Plaza Hotel, Ottawa.*

CANADIAN ASSOCIATION FOR  
RENEWABLE ENERGIES

**The Chair (Mr Doug Galt):** We will call to order the select committee on alternative fuel sources here in Ottawa at the Crowne Plaza Hotel.

Our first presenter is Bill Eggertson, executive director, Canadian Association for Renewable Energies. Thank you very much for coming forward. It's much appreciated. We look forward to your presentation. There are 20 minutes set aside for you and you can use that in presentation. What is left over we'll divide between the three caucuses for questions.

**Mr Bill Eggertson:** Thank you very much, Mr Chairman, and members of the committee. My name is Bill Eggertson. I'm executive director of the Canadian Association for Renewable Energies, a national organization set up in 1997 to promote feasible applications of renewable energy. Obviously, our focus is on national issues, perhaps not as much as it should be on provincial, so we do appreciate the opportunity to dabble in your affairs to the extent possible.

My background is almost 20 years in the renewable energy sector. I started in 1984 as the executive director of the Solar Energy Society of Canada, when a new federal administration decided to cancel Canada's solar energy programs. In the last eight years I've shared my time with the Earth Energy Society of Canada as executive director; that is ground-source heat pumps. I've just finished a contract with the Canadian Solar Industries Association and am currently doing a contract with the Canadian wind energy industry. So I am a generalist in energy policy, an expert in none, but I was actually one of the three Canadians on the advisory panel to the G8 Renewable Energy Task Force that reported to the G8 meeting in Geneva a number of months ago.

Our association's claim to fame was that we started a newsletter called *Trends in Renewable Energies* back in 1997. It teamed up with our US counterparts about a year ago. We now are the largest electronic newsletter on renewable energy in the world. We have close to 10,000 subscribers. Just before Christmas we celebrated our 1,000th issue of publication. So again, a lot of my focus is from outside of Canada. Much to my dismay—I am a

Canadian and the newsletter was set up to promote how much was going on in Canada about renewables—it became easier to talk about what was going on in other countries and hopefully the Canadians would adopt it.

One final anecdote: our association has actually set up Canada's first and only green hosting Internet service, where we had to move our server out to Calgary, because it was the only province at the time that offered certified green power both from the generation of wind turbines and through the municipal utility ENMAX in Calgary, but we now offer to associations and organizations in the country an opportunity to host your domain service on a wind-powered service based in Calgary.

I will comment very briefly on some of the 65 questions that were contained in your interim report. We're hoping to scramble and get together some written submissions, a little bit more detailed than I will be able to provide today. What I'm hoping to do is to give you the benefit of our association's viewpoints or special interest views so that it helps your committee understand some of the issues that you should be asking some of the other people later on in testimony.

My belief is very clear: renewable energy is the energy of the future in this world. You've had Shell repeatedly enunciate its forecast that by 2050, 50% of the energy in this world will come from renewables. You have BP, which owns the largest solar PV production facility in the world. Even now, companies in Canada like Suncor are dedicating \$100 million—albeit Canadian dollars, it's still real money in many cases—to the support of non-conventional fuels. Obviously, there have been some setbacks: the California crisis, which impacted on Alberta prices; the more recent issue with Enron, which is scaring a number of people away from energy issues. These are setbacks, renewables being a subset of energy. However, it is our very clear belief that Canada and Ontario must start the transition to renewable energy. It's going to come. The question is not how it's going to come, but when. The faster we get on the bandwagon, in our opinion, the better it is for our economy.

Most countries don't have the same energy options that Canada does. We are blessed in this country with a large number of natural resources. Consequently, I think a large number of Canadians, and Ontarians by extension, don't realize that Canada is facing an energy crisis, which puts a very heavy onus on your committee to raise the profile in the provincial assembly as to what needs to

be done and to come up with some very good recommendations to enable the province to move in what we consider the proper direction.

California has shown very clearly that government is frequently the engine of vision down there. A lot of the municipalities in California are the key stakeholders, the clear leaders in the adoption of renewable energy. Up here, because energy is not per se a federal jurisdiction—it is provincial—very few of the provinces, including Ontario, have really done anything. I know of four people in the Ministry of Energy, Science and Technology in Toronto who are involved with renewables. They have no political directive to do anything to support renewables. They certainly have no program budget. They are wonderful bureaucrats doing wonderful stuff, but their hands are tied to a very large degree.

A lot of what we see here in Canada is happening at the municipal level, spearheaded largely by groups like the Federation of Canadian Municipalities and Jack Layton, who is the current elected head of the FCM. We would certainly love to see the province get a little bit more involved in terms of the promotion of renewables.

I'm going to make about six very broad comments in response to your interim report. In your report you frequently mentioned a number of the innovative activities that are taking place in the province, specifically building integrated photovoltaics, where you clad a building in solar panels. You were talking about the federal green power procurement. You're talking about renewable portfolio standards. One of my personal complaints, I guess, is that if we're talking environmental mitigation, adopting an energy source that is good for the environment and therefore adopting renewables because they are good, far too much of the focus in Canada, and I think in your report, has been placed on electricity generation, green power. There are a number of reasons for this and it's natural. Most jurisdictions in the world do it. However, if you're looking for bang for the buck, both in terms of incentives or policy, please do not overlook the impact of renewable energy in space conditioning, meaning space heating, space cooling and water heating.

In Canada there is far more energy—BTUs, gigajoules, whatever measurement you want—used in space conditioning than is used for electricity, but the focus is very frequently on electricity. If you're looking at it from an environmental point of view, a lot of our electricity is generated by nuclear and/or hydraulic, which actually have no GHG emissions, so therefore it is a bit of a moot issue, as opposed to space conditioning where most of the residential buildings and most of the commercial-institutional buildings are heated and cooled and water-heated using natural gas, oil, propane or whatever. So it's an appeal to this committee to not overlook the space conditioning market as you consider your report.

1110

I should mention that the two organizations with which I'm involved, both the Canadian Association for Renewable Energies and the Earth Energy Society, have teamed up with the Canadian Solar Industries Asso-

ciation and two biomass groups. We have formed a partnership called the GreenHeat partnership. For reference, we've got a preliminary Web page at [greenheat.org](http://greenheat.org). The intent here is to focus far more attention on space conditioning than on electricity, based on the fact that if you look at residential and institutional-commercial institutions in Canada, they emit 65 megatons a year of carbon dioxide alone just for heating and cooling and water heating in those two sectors. Approximately three times more energy is used for those applications than for electricity. So I'm not downgrading the need for green electricity. We are a society that is electrifying very heavily. Electricity is very important and, certainly, go green whenever you can, but do not ignore the space conditioning.

The GreenHeat partnership has been set up to basically replicate the federal green power procurement. What we're trying to do is rush our submission into the climate change to say that the federal government should obtain 20% of its space conditioning in federal facilities from the four technologies that are recognized by the federal government as renewable energy space conditioning technologies, those being earth energy, solar thermal air, solar thermal water and advanced biomass. So again, the appeal to this committee is to consider that same aspect.

My second comment: in your interim report, you said there was considerable uncertainty and debate over the definition of green power and you wanted to hear how Ontarians define it. We would appeal that you wait until March 7, the expiration of the Environment Canada draft definition, which is out for public comment right now through the EcoLogo/Terra Choice environmental choice program. The end result of that will be a federal Environment-Canada-defined, low-impact renewable energy. Even though we may not agree 100% with what we expect the Environment Canada definition to be, we would certainly encourage the province to embrace whatever they come out with, simply to avoid inconsistency across the country. If Ontario takes the lead and says, "Gosh, whatever the feds have called it, we'll define it the same way," that stops other provinces from considering their own definitions. I have been involved with some activities in the United States where you have different specific photovoltaic certification levels in different states, and it's a mess down there. We would hate to see the same thing happen up here in Canada.

The third point is an underscoring of your intent expressed in the interim report that any goals or policies you implement or recommend be incremental and realizable. The US experience has shown that a lot of people will say they want green power, they want renewable energy; however, when the programs are introduced, a lot less people pick up the programs and pay the premium than had been expected. We are paying a very hefty premium for our green hosting service out in Calgary. I was expecting people to pound on my door. It has not happened. Very few environmental groups are hosted on the green Web site that we offer. Even the Canadian



Wind Energy Association, whose turbines are generating the electricity to power the Internet server, has refused to basically move over to our domain. So it's a little bit of a warning. As I'm sure you, as politicians, have realized, people say one thing but they don't always adopt it in the second.

Another example is Earth Energy. In a residential installation, you're talking a six- to eight-year simple payback period. That is far too long for most consumers. They don't understand life cycle costing. It's the sticker shock that turns them off. So for any policies or whatever, if you can reduce the first cost, it's much better than many other policies, simply because it gets you over that very strong hurdle or barrier.

Another point is that obviously the government has options in terms of both monetary and non-monetary incentives. You've referenced the renewable portfolio standards, the green power procurement, the various incentives. From our position, we prefer non-monetary incentives, partly because monetary incentives have to end. The predecessor to the Earth Energy group had actually had a very long-standing program with Ontario Hydro to install ground-source heat pumps. Ontario Hydro gave a \$2,000 rebate. Ontario Hydro had to stop the program after four years, I believe it was. The perception among consumers was, "Oh, something is wrong with the technology."

There was nothing wrong with the technology; the government trough ran dry. When the federal government offered Earth Energy an incentive under the Renewable Energy Deployment Initiative program, the REDI program, our industry took an unanimous decision to say, "Thanks, but no thanks." We did not want an incentive. We're the only one of the four technologies that does not receive a kickback or a bribe, call it what you will, because we knew that the feds would not be able to continue it forever and we did not want the roller coaster ride to go up again, which is beautiful for business, wonderful for commerce, but when it ends—I think in Ontario, when that program ended with Ontario Hydro, we didn't sell a single system for about two years. That hurts. So our recommendation is, stay away from bribing us with our own tax money incentives.

We agree with you totally on energy efficiency and conservation and the fact that this committee should be looking at it. Energy efficiency and conservation is a key to renewables. The trick is to get your demand down to the lowest level possible; then any of our technologies can far more feasibly meet your supply requirement. We would hate to see a policy saying that solar photovoltaics will be the energy source for the steel producers in Hamilton—not feasible.

Earth Energy people: if you've got a leaky house like a log cabin or anything that is not an energy-tight operation, an Earth Energy dealer will not even talk to you. It's not our intent to charge you—well, I suppose some of our dealers would actually love to charge you—to install a large number of loops, but it's stupid if you're going to then be heating the outside.

So as I say, conservation. Ratchet down your demand to the lowest level possible. Eventually, though, you will need some energy, either for electricity or space conditioning. As much as possible, in our opinion, that should come from renewables.

The final point on this one is that obviously I'm hoping this committee has looked at a number of studies, primarily US and European-based—very little has been done in Canada—showing the benefits from renewable energy in terms of price stability, job creation and environmental benefits. They are quite profligate down in the United States and if you ever needed a reference, I could probably pull off about 50 studies that have been done by reputable groups: the Union of Concerned Scientists, the Renewable Energy Policy Project-Crest operation. Purdue has just come out with a study. A study currently in Congress just came out last week by a Democratic pollster, to be fair. It says that 69% of Americans believe more jobs would be created through federal support for renewable energy than would be created through drilling in the Arctic reserve—which of course is part of President Bush's energy policy—versus 18% of the respondents who thought that drilling in the Arctic would create more than the renewables. That's a key point of the President's energy policy, and he's received support from the Teamsters and stuff like that, but most Americans seem to believe—and the Sierra Club said the President is obviously out of step—that renewables do create more jobs per energy delivered than any of the other options. So whenever we talk to government, I turn the phrase, "If you come, they will build it." If there is a market for it, the industry will come in and set up whatever production facilities are required to do it.

I always believe that government should be congratulated when they come out with a good document. Certainly your committee is to be commended on the interim report where you talk about your broad consultation and the fact that you don't wish to focus on a particular energy technology. I agree with you 100%. There is no silver bullet; you'll never come up with it. The issue is to come out with a diversification or a balance of technologies. Obviously, we think renewables have a large role to play in that diversified match.

Some of the questions you pose in your report, such as, "What percentage of what fuel source would contribute what to the energy mix?" are difficult to answer without knowing what it is the province would do. Obviously, if you were to pass a regulation or legislation saying all energy technologies must be renewable by Tuesday afternoon, that's one answer. Depending on what it is that government sets, it's a difficult one to respond to. Certainly, if there's time for questions, I can perhaps elucidate on that a little bit.

But what we'd love to see this committee recommend or come out with is some type of econometric model that allows you to plug in a lot of these parameters, that if you increase the tax rebate and you have an RPS for this and you do that and the other, that would have this type of output. I've never seen it in Canada; I don't believe a

model like that exists up here. There have been some good attempts down in the United States and it may be something worth the committee investigating.

Your report talks about the benefit of renewable energy to the grid. Again, you're talking grid electricity. There are many applications for renewables in off-grid applications and of course for space conditioning as well. Among the major benefits of renewables are their local contribution, their local job creation and their energy security factors, all of which need to be factored into your report.

1120

One objection is when you use the term "cost," such as, "What would wind cost in relation to others?" I'd love this committee to define your cost. For example, we have never really costed a lot of the life cycle costs and security costs and health costs from some of the conventional sources, and I know that we in the renewable energy sector are always very sensitive when people say, "Well, how much more will wind cost?" More than what? What is the baseline against which we are being compared? Also, what would incentives or subsidies cost the government?

I throw it back at you: what would it cost our economy and our society in Ontario if you don't promote renewable energy or cleaner energy options? At some point in the future, if we run out of conventionals or if we start killing more and more people with the use of fossil fuels, that is a cost, and you need to balance those ultimate costs—hypothetical costs, perhaps—against the costs we are factoring into our equation.

You said, "Are there any downsides for renewables?" There are a lot of downsides, and I don't think any professional practitioner within the renewable energy sector would try to deny it. However, we do try to keep the attention focused on legitimate downsides. Wind has always suffered from the fact that they killed a number of raptors down in the Altamont Pass in California when the first turbines went up. Turbines were put in a migratory bird path. They had fast-moving turbine blades. The raptors, probably not one of the brightest bird species going, went into the blades and were chopped up. They have now evolved to larger, slower-turning blades, and they are not in the migratory paths. It would take a really stupid bird to mix itself up in turbine blades, but the industry is still criticized for this.

When the Toronto Renewable Energy Co-operative wanted to get their application for the CNE site and the Toronto Islands site for turbines, they had to go through a very exhaustive analysis, and that was one of the questions, basically: "How much wildlife will you kill?" They were able to go around to the downtown Toronto high-rises, the TD towers and stuff like that, and there were hundreds of birds that whacked themselves out every year cracking into the towers. But they never said, "Let's take down the TD towers," simply because they were killing birds. That's the type of focus.

We have a downside. One dead raptor is far too many. I think the studies from Europe show that each turbine

kills an average of one and one-half birds per year. So my cats are already equivalent to about 20 turbines. Maybe I should get rid of my cats. If you're going to concentrate on downsides, we do have some, but please try to keep them to the legitimate downsides and not some of the red herrings like turbine blades.

I'm going to skim very quickly and just throw back some comments on your public policy questions. Obviously we totally support the development of a provincial strategy on renewable energy. You need to define what you mean by "renewable energy," you need to identify what your feasible applications and options in the province are and then set some type of goal, whether it's a renewable portfolio standard or government procurement etc, and do it; perhaps a set-aside for some of the longer-term technologies, things such as BC Hydro is now investigating, ocean current energy on Vancouver Island.

**The Chair:** Could I just interrupt for a half second? We have arrived at the 20-minute point. I need to get permission from my committee for you to extend. Tremendous information, but is the committee comfortable that we—

**Mr Steve Gilchrist (Scarborough East):** Recognizing that there is a cancellation at 11:40, perhaps we could split the difference and add another 10 minute here.

**The Chair:** Great. He's zeroing in so much on our report, and the information is just excellent. My apologies for interrupting, but I do have rules I have to follow as Chair. If the committee is comfortable, so am I.

**Mr Eggertson:** I respect that and thank you very much, Mr Chairman. What I'll try to do is finish in about two minutes, so that I can entertain any questions, because I think that would be more relevant.

Very quickly, keep your specific financial incentives to a minimum. Most of the money that is developing the renewable energy sector in the United States is private, and by that I mean system benefits, charges and other foundations, which are heavily involved there. You're probably aware of the San Francisco bond that was passed by the community last October or November, I think, a \$100-million bond, and this was in US dollars, so we're talking real money here. Your committee could recommend some creative activities where perhaps the provincial Legislature would empower municipalities to enact the same type of operation, so it doesn't necessarily require provincial tax dollars. As a citizen, I'm very concerned about your doing that, but I think there are ways of doing it other than bribing us with our own tax dollars, as I said before.

In the absence of a carbon tax, which of course is a no-no term in Canada, obviously we would encourage your committee and the province to set a date for some type of transition or increased penetration of renewables. Show that the province is serious. We could have a debate up until that date, and we probably would, but nonetheless at least we would hope the province does something to go for that.



Any efforts to compute the full life cycle costing are wonderful. As I mentioned with Earth Energy, if people were to understand life cycle costing, renewables win in virtually every application.

We would certainly encourage a provincial green power procurement, including the MUSH sector, and certainly both electricity and space conditioning. Don't ignore where you can get the benefits. In terms of supporting a lead ministry being set up, a number of jurisdictions have already set this up, like India, which has a ministry for non-conventional energies.

Many of the people in our sector aren't comfortable with the renewable energy group at Natural Resources Canada because it's in under the electricity branch, which means you've got a director at NRCan who is responsible for renewable energy and electricity in Canada. We don't necessarily think we get a full share of the gentleman's attention. So we're worried about ghettoizing if you were to set up a specific government ministry to handle renewable energy.

Researching programs: most of our technologies are already commercially ready. All we need is a market in order to sell the technology to consumers. Fuel cells are a slightly different case. Fuel cells are not an energy source; they are an energy-delivery technology. We fully support fuel cells because of the fact that renewables can be used quite effectively to split the water to make the hydrogen to stack the fuel cells. Renewable technologies are quite well suited to the application of fuel cells, and we also love them because it means we are shaking up the status quo. When people start looking at fuel cells, they also, by extension, start looking at other technologies, like renewables.

In conclusion, why should Ontario adopt renewable energies? Profit. A lot of money can be made in this. If you look at Denmark, the largest single industry in Denmark is now wind turbines. Japan is making a lot of bucks off photovoltaics. A large number of companies have stayed out of Ontario simply because there is no market here.

The provincial and federal governments are going to back the ITER fusion reactor because it attracts qualified, high-quality, high-value employees. It would be the same in renewables. If you start making it an integral part of an industrial strategy, again, they will come.

Environmental benefits are extremely strong. I'm not even going to discuss this, because I imagine you've been having that discussion. Renewable energy is basically what the people want.

Also, we've said before that for every joule or watt of energy we can displace in this province, it means we can export it and it becomes a revenue source. If we sell it to the Americans, it allows them to reduce their reliance on oil, which has implications for the whole issue of terrorism and their foreign policy. We encourage Canada to save our conventional energy. If necessary, ship it to addicts like the Americans and help them out of their current situation.

We're certainly not advocating a demise of fossil fuels. We will always need them. Ontario, as you know, does have an image as a bit of a dirty province because of the amount of industry we have. If the provincial government were to take a very strong stance supporting renewable, clean energy, I think it would give the province a wonderful image makeover. We should keep the petrochemicals for things like Velcro and polyester and all of the other items that consumers in Canada and Ontario use very heavily.

We view the committee work as an ideal opportunity for you to make recommendations to the Legislature which will have a long-standing potential impact on the province and, by extension, the country. Timing is critical, and we certainly appreciate the open mind that you have displayed in your interim report, in terms of not closing any doors, keeping everything open. We wish you the best of luck in your deliberations and look forward to your final report.

Thank you very much for the opportunity to address your committee.

**The Chair:** Thank you. Particularly, you zeroed in on the report, and that's what we were really looking for in this round.

Unless anybody objects, I'm going to give three minutes to each of the caucuses for questions, and then we'll go from there. But I'd really encourage you to address in writing the 65 policy concerns that we have. We look forward to that. Who would like to start off? Dr Bountrogianni.

**Mrs Marie Bountrogianni (Hamilton Mountain):** Thank you for your presentation. It was excellent. I went into your green hosting Internet service last night, and I wish I had done that earlier. It's an excellent site. Thank you.

Given what you just said about monetary initiatives, on your site—and I want you to comment on this; perhaps this isn't what you meant when you said, "Stay away from monetary."

"A Canadian biomass company, DynaMotive Europe, a subsidiary of DynaMotive Technologies ... received one of Britain's largest grants to develop its process. It received £1.16 million from the UK Department of Trade & Industry to enable commercial production testing of an integrated BioOil and electricity generating plant in the U.K."

I actually stroked that last night to ask you, is that what you want us to do here, give those kinds of grants to companies here? I'm not sure with your comments. Maybe you can comment on that.

1130

**Mr Eggertson:** I have to be careful, because a number of our members in various technologies do like and do rely on government support. So I am not saying the government should not give incentives if obviously necessary, and the more nascent the technology, like a fuel cell or a biogas operation—many of the innovative technologies do need financial support and you're either going to get it from government or from some venture

capital. There are pros and cons to each of the operations. What we're worried about is a consumer incentive, where you pay people in Ontario X dollars to do what they should be doing, but at some point you're going to stop paying us, because you have to, and that has a bit of an immediate impact on consumer perceptions. So if you were to do something—we've never advocated a straight cash kickback, which is how the Earth Energy incentive worked. People bought the units for the \$2,000 grant; they didn't even know what they were buying. We don't want to walk into that trap again.

**Mrs Bountrogianni:** Right, an informed public. Do I have time for one quick one?

**The Chair:** You have half a minute.

**Mrs Bountrogianni:** Again on your Web site you cited that the Canadian government is reviewing the definition of a test wind turbine which may lead to changes under federal tax law. Are you aware of the process of that and where that's at?

**Mr Eggertson:** I know they are dealing with finance and Revenue Canada, and it's simply that wind turbines are eligible for the conservation renewable energy expense. I'm not a tax expert. They get something based on one application. They want to expand the application, because most wind turbine manufacturers and users tend to be small companies. They can't use the flow-through provision. So there's a whole accelerated capital cost depreciation, which is largely of no use to the actual users because they're not in a position to handle it. They want to basically expand the definition so that they can capture some of that revenue.

**Mr John Hastings (Etobicoke North):** Sir, thank you for coming in. My first question would relate to your views on grants. You're saying that some organizations in renewables are reliant on grants as the best way of giving them a launch. But if you look at the history of grants from the solar industry perspective in Canada, and probably other renewables in the 1970s and 1980s, where did it get the solar industry? At one time there were up to 40 companies; now in Ontario I think they're down to one.

**Mr Eggertson:** There is a very chequered history, as obviously you are aware. There were companies that were abusing the grants. Some companies ended up in court as a result of it. You need better monitoring. I guess it's like any government research, tax incentive, grants, whatever: you offer something and somebody is smart enough to figure out the loophole and scam you. You don't want to set it up so that there are no scams, because then your enforcement and administration costs outweigh the value of the grant. But certainly if you have some type of incentive—and I'll use the term "grant" or whatever—just make sure that you get your money's worth out of it. Have some benchmarks. Advance the money only when they reach milestones.

I understand that the practice is tighter down in the United States, where you meet actual milestones before the next cheque is cut. Up here, Canadians tend to be a little bit more benevolent. Again, I'm ambivalent making

this comment, because I've worked with groups that have received government funding and we swear about how long it's taking the money to come in and it's drying up our cash flow etc. It's just—please be careful.

**Mr Hastings:** Are you familiar with the Australian renewable energy scene?

**Mr Eggertson:** Fairly.

**Mr Hastings:** Do you think there is good material from an industry perspective, a university perspective, from the state and commonwealth government's perspective? They have done a number of interesting things down there to create an industry in renewables: solar, wind, what have you, especially solar.

**Mr Eggertson:** I would submit that the Australian government, which has the same messed-up confederation as Canada has, has probably been more successful in promoting it, because they have set up the SEDA and they do have state governments which are promoting it. They are more committed to developing their industry, I think, than Canada is.

**Mr Hastings:** Do you think Canada, the federal government, should look at Australia as an effective model, being a federal state?

**Mr Eggertson:** Yes.

**Mr Hastings:** We're not getting much leadership from them.

**Mr Eggertson:** We have always not criticized the federal government, because we recognize it is not their jurisdiction to get involved in renewables and we realize that when they put their neck out to support renewables, if the provinces wanted to, you could slap their wrist, simply because it's not really their job. So we're always conscious of not getting into the whole constitutional push and pull.

**Mr Hastings:** Then isn't there a conflict here in terms of having to be resolved? If we sign the Kyoto agreement and implement it, aren't they going to have to take a federal policy leadership role in terms of the C carbon emissions and all that?

**Mr Eggertson:** Yes, but they have to work with you at the provincial level, so you have to work together on that. You're right. They are signing it, you're largely implementing it, and that's why you have to be friends.

**Mr Hastings:** The new federalism.

**The Chair:** Thank you ever so kindly for your thoughtful and informative presentation. I am sure that our researchers will be contacting you in the future.

**Mr Eggertson:** We're open to any follow-up questions from your committee, sir.

**The Chair:** Super. We really appreciate your coming forward.

#### PLANETARY ASSOCIATION FOR CLEAN ENERGY INC

**The Chair:** We'll move on to our next one, the Planetary Association for Clean Energy, Mr Andrew Michrowski, president. Thank you very much for coming forward. For the sake of Hansard, please state your name.



Also, as you have heard, there's 20 minutes for your presentation and what's left over we'll divide between the caucuses.

**Dr Andrew Michrowski:** My name is Andrew Michrowski and I'm president of the Planetary Association for Clean Energy. The paper I have given you a copy of is probably longer than the talk that I should give. I'll try to glide over it and leave as much room as possible for questions. This may be a novelty to all of you. That's why there are some specifics in the printed format.

We're discussing the possibility of using water as a fuel, and this could have implications, if so desired, on many levels in Ontario. Our association is an international, interdisciplinary, collaborate network of advanced scientific thinking, founded in 1975 and based in Ottawa. We would like to bring to your attention the potential technological choices to Ontario offered by the systematic use of water as a fuel.

Our network has followed and facilitated one such system since its inception: Brown's Gas. Because so much research has been conducted with this technology, it is possible to describe many office applications with the specifics. We believe that it is in the economical and political interest of Ontario to consider some of these applications in this decade.

Brown's Gas is water separated into its two constituents by an advanced alkaline electrolysis process in a way that allows them to be mixed together under pressure and to be burned together and safely in a 2-to-1 proportion. The process results in a gas that contains ionic hydrogen and oxygen—of course, molecular too and hydroxy as well. When sparked the gas recombines safely, by implosion, back to water, collapsing in a vacuum-water ratio of 1,886 units to 1.

There are three decades of research with this, and you'll see there's a list of 26 applications. At this time, just for your interest as I'm getting off the document, the one that we're working the most on successfully with Atomic Energy of Canada Ltd is for nuclear waste decontamination. Within 10 seconds it is possible to reduce the radioactivity of nuclear materials down to 4% of their previous levels, which is a very important thing which would mean that we could inexpensively—especially in Ontario; this is a big Ontario problem—decontaminate nuclear reactors when they're decommissioned.

In this presentation, we'll focus only those applications that come under the purview of your committee's mandate and interim findings.

Brown's Gas generators and some of the applications were first developed and manufactured in Australia. In the late 1970s, production was transferred to the People's Republic of China at the inducement of the government, resulting in mass production of generators for national distribution—by the way, by a company as large as General Electric. That's Norinco, which is the electrical appliance company, if you wish, of China.

The important Chinese applications, besides welding and brazing, include water desalination, medical and

toxic waste management and destruction, pharmaceutical production applications and material hardening.

#### 1140

In 1996, the Chinese re-invited Yull Brown to build a Brown's Gas system for deployment in cars. That was after the terrible smogs of Beijing and Shanghai; the Chinese said, "There must be a better way than the normal combustion system." This particular technology transfer was interrupted in part due to ill health when Yull Brown decided to return to his homeland, Australia, to spend the last months of his life.

Through the auspices of our association's network, Yull Brown made arrangements for additional manufacturing facilities to produce generators and applications that would meet North American and European Union standards here in Canada. One novel Canadian application now underway is for the synthesis of heavy crude and oil sands. Our Canadian colleagues are now successfully investigating applications in automobile engines and in optimizing the combustion of other fuels such as wood, coal, natural gas etc into near-complete burn and minimal emissions.

There is also a very convincing case, but not yet test-proven on a large scale, for using Brown's Gas for the purpose of storing energy in such situations as excess hydro capacity and wind and solar energy by producing Brown's Gas from electrolysis during slack demand periods and then using Brown's Gas to produce electricity on demand during high consumption periods. The efficiencies in both phases are very exciting. The efficiency of electrolysis is near 99%, which can't be better, and the use of Brown's Gas to produce energy is on a level around 80%.

The ready and limitless availability of water makes Brown's Gas the best carrier for solar energy and other alternative energy sources developed to this time. It has higher energy-conversion efficiency than hydrogen alone, which is conventionally considered to possess the highest conversion efficiency as a fuel. Brown's Gas is non-polluting; it does not even emit the nitrogen oxides which result from hydrogen burning. It is naturally recyclable. The product of its burning is pure water. Brown's Gas is adaptable, like hydrogen, to most of the existing energy utilization technologies without any modifications.

I would like to bring in an aside here that one of the world's experts on hydrogen economy, a member of our association and former dean of chemistry at ANM University, Professor Pappas, stated that if hydrogen economy were ever to be implemented, Brown's Gas would be the best choice.

Just to give you an idea, and this is only for the purpose of illustration of how Brown's Gas can be used, this analysis was actually done for the Canada Mortgage and Housing Corp when they wanted to make a stand-alone healthy house in Toronto that would not depend on hydro, water or the sewer system. It was built, by the way.

You can have heat by attaching catalytic heaters to a supply of Brown's Gas, from a generator, as any gas. That can be used for elements and for space heating. So it's catalytic combustion, just the passage of gas. Then you can have cooling. Water cooling and space cooling requirements can be provided by compressing the gas or by venting the result directly into the medium, or to be put in the space to be cooled. The other way, of course, is to expose the Brown's Gas flame to circulating Freon gas tubing, not unlike the old method of applying lit gas lamps with paraffin wicks in the pioneer Frigidaires.

You can also have clean water if necessary; that is, you use the Brown's Gas to get back the water, but cleaner.

The other use, of course, is to use it as an energy storage system. One litre of water with about five kilowatts' input generates 1,866 litres of Brown's Gas, which can be released to a chamber located up to 10 metres above floor height and which is linked by a flexible pipe connected to a water basin subject to ambient atmospheric pressure. When that chamber is ignited with sparks, it creates a vacuum by implosion, and that would trigger the raising of 1,866 litres of water up to the height of 10 metres, and now you can have a mini-hydroelectric facility even in most residential apartment buildings, for example. So you can have quite a bit of electricity available, even at major inefficiencies, that could be used to run the apartment building.

Such a system—not for an apartment building but for a smaller house in Australia—has been operated for 10 years, and it was found that Brown's Gas storage is over 98% efficient, as are current hydrogen/oxygen tank storage systems. However, it is found that it is not worthwhile in such circumstances just to have bottled gas but to have the generator on the spot. The same thing applies to hydrogen. There are too many problems associated with operating the tanks.

I went down to a house with a solar cell system where you have a generator in the house that would take the excess power from solar or wind energy to be stored in Brown's Gas and then you'd have all these things: heating, cooling, clean water, energy stored and so on. This fits well with certain initiatives in northern Ontario, where the federal government is now installing houses in isolated communities, to assure problem-free energy production, heating, air venting, clean water—great water—and storage treatment, all in one unit. Brown's Gas generators are small and not noisy. They can do that work very neatly.

Of course the scope of your committee is not to cover only special housing or isolated regions. There is the question of the big picture. Existing combustion technology can be boosted from low efficiency to extremely high efficiency by spraying Brown's Gas onto flames. That's an application that already exists in China for waste and medical waste incinerators. Large-scale application of this can mean big advantages to the provincial economy, which essentially is dependent on an imported fuel supply.

A similar context exists in Germany, where an econometric study by the University of Hagen—and I have deposited one sample of that study—showed that they apply low-cost Brown's Gas nationally for heat and electricity generation in both centralized and decentralized settings in Germany. As you know, in Germany they have lots of these heating facilities for apartment blocks and so on, or even for entire neighbourhoods, but there's also a demand for autonomous services—like in the mountains, for example—and for the transportation sector.

That study showed that a phased implementation of such a system over 10 years would be beneficial in terms of the national budget because of decreased expenditures related to the environment, and it would also lead to an increase in employment. It would be so inexpensive to run cars that people would be using cars more, and this was seen as bad in Germany. In Germany that's a tremendous problem. In fact, the country is relatively small for the population, and just thinking they would have to build more 400 series highways was enough to make the government say, "My God, we might be saving something, but we may have to build more highways to take care of greater car use." That is not necessarily the case for Ontario. Of course, they saw the economy would be stimulated because there would be greater purchasing power. We expect a similar and desirable consequence for Ontario.

Let's go back to the electrolyzers. We have conversion efficiencies anywhere from 90% to 95% for electrolysis in the real-world setting. When you start selling these things, the efficiency decreases on site, in context, from 99%. We also know that the theoretical energy level of hydrogen/oxygen gas is around 50,000 BTUs per pound. But Brown's Gas has at least 66,000 BTUs per pound, and the inventor found a way of getting it up to 210,000 BTUs, which is almost at a nuclear level. If just 80% of this energy can be recaptured, it will be a significant improvement over the main problem with all variable-power input systems: energy storage—solar, wind, tidal etc; of course, tidal is not important to Ontario. The gas storage development is of a very high priority for future developmental work in this area, yet experience suggests that the off-the-shelf liquid petroleum gas technology storage system is adaptable to Brown's Gas. That means we do not have to reinvent the entire problem of storing the gas, because the LPG system applies as is.

#### 1150

Brown's Gas can also be used, if it were desired, to increase the efficiency of fuel cells. This may be of some interest for variable-power input hydroelectric plants and wind energy farms.

There's also the possibility—this has never been tested, but was thought through by a major engineering firm in the United States—of using Brown's Gas to energize magnetohydrodynamic systems; that is, an electrical plant of no moving parts. So MHD would convert hot gases directly into electricity. The temperatures required for such a thing can be obtained with



Brown's Gas. The prediction is that, in using Brown's Gas, you would have a 20% overall improvement over a conventional system.

This raises a very interesting situation. Sooner or later we'll have to get rid of nuclear power plants in Ontario. Ontario has a very high density of them. You can see a situation where Brown's Gas could be used to make sure these plants are no longer radioactive very quickly—all the concrete in the whole thing becomes very radioactive. So you can clean it up and then you can use the same shell and use that facility with probably no new capital costs and now have it produce electricity with Brown's Gas instead. Water, which is always near a nuclear power plant, would be the fuel. That would certainly pay, I think, for Ontario, whatever the company and the power generation that it has for these plants.

The other possibility of a new industry for Ontario is that there is such a thing, instead of using a normal combustion engine, an optimal engine that will work on Brown's Gas, and that is a push-pull configuration. The normal combustion engine tries to use explosion to fight against atmospheric pressure to get that piston moving. You can have another piston that would just collapse into a vacuum by sparking the gas, and that would now have a great advantage, because atmospheric pressure would actually be pushing the other piston. So it would be a three-cylinder radial engine that could work on that basis, and we think it would have very good emission characteristics and a low vibration during operation.

It may interest you to know that Yull Brown drove a number of cars with a variety of internal combustion engines. These were tested, and he came out officially with 1,000 miles in the Outback of Australia on one gallon of water, which shows you how the BTU content of Brown's Gas is so much superior to gasoline or all those things. Of course, this sounded incredible, so the best electronics magazine in Australia, Electronics Australia, tested this in all their staff cars and were able to, with very little modification, run those cars on Brown's Gas.

**The Chair:** May I just interrupt for half a second? We're a little over the 20-minute mark.

**Dr Michrowski:** I'm sorry about that.

**The Chair:** Maybe you could wind up in one or two minutes and then, with the committee's permission, I'll give one or two minutes per caucus.

**Dr Michrowski:** Thank you, sir. So the cars had no emissions, they were cool, they would last longer, and of course the exhaust was just warm steam.

You see the statistics. Basically, it turns out that a small gasoline car in Ontario costs about two cents a kilometre to operate, an electric car would cost about a cent a kilometre, but a Brown's Gas full-size car would run at about 0.13 cents per kilometre.

I'm not going to go further. All I can say is that there are already certain Ontario citizens—usually people who have the courage to do this, like lawyers and doctors—who run cars on Brown's Gas. And the unit that does it is probably as big as the 1.5-litre Pepsi-Cola or Coke bottle.

That's how big the Brown's Gas generator has to be to run a car. So that would be of interest to you to know.

I talked about agriculture applications further along.

The last thing I'd like to say is that if it's so desired, our collaborative network worldwide would be very happy to co-operate with the government of Ontario to get through any technology transfer that you may wish. That's it.

**The Chair:** We'll give a minute to each of the caucuses. The government side?

**Mr Gilchrist:** I'm just struck by trying to grasp very quickly here the technical side of the product—

**Dr Michrowski:** It's new.

**Mr Gilchrist:**—and discussion about monoatomic versus diatomic hydrogen and oxygen. Going back to my chemistry class, I'm struck how gases that just normally do not exist in nature, and even when created as a result in this case of the use of a catalyst, would not then in and of themselves want to recombine in a normal state. What keeps the hydrogen and the oxygen from doing what hydrogen and oxygen—they told us at school—always do?

**Dr Michrowski:** OK, let me explain to you. This is not the only way, but the classical way, the way the Chinese opted to do it, is that you have a cell and you have sheets of metal, and on one side—of course you'll have current going through, direct current, polarizing each sheet. And this is all immersed in water. So out of one will come oxygen; the other one will be hydrogen. But they bubble, bubble, bubble. As a matter of fact, I've seen quite a few generators which are totally Plexiglas; you could see right through. You can see what happens. They eventually do merge, and then you have basically a soup.

You know, when I told you that you can have Brown's Gas up to 210,000 BTUs, the secret of that is partially in the kind of circuitry that you have, what kind of pulsation and type of wave forms you have, but also in how you're allowing this soup to be there and how fresh is the gas that you're using when you want it. So there are all kinds of problems of an engineering type. For example, just to tell you the kind of problems people have had when they tried to imitate Brown's Gas is that the bubbling just becomes like foam and then it's hopeless. You want it to be like bubbles of something that is not a foam-like type of thing and can be circulating.

But in these mixtures you have all kinds of situations, and some we have now been able—which is not easy, by the way, to make the spectroscopic analysis. What the hell do you have there? Because you do normally expect just to have the hydrogen molecules and the oxygen molecules—and they do appear—but you also have these different types—and there are three types possible—of hydrogen. There is tritium, for example, and so on. And they can be in a very short-lived time too.

But the normal gas that is not exotic, you know, the 66,000 BTUs, is very simple and is very straightforward. Just very little of the other stuff, yes.

## 1200

**Mr James J. Bradley (St Catharines):** My quick question, because I know I have only a minute, is regarding what kind of specific commitment you have from Atomic Energy of Canada for the use of Brown's Gas.

**Dr Michrowski:** We have an agreement with them. First of all, one of our members has already, for a year and a half, perfected the system. Basically, let's say this is a radioactive material and you have a Brown's Gas flame and you don't know anything—just chance. You're not going to reduce radioactivity more than 60%, just the interplay. It takes time and effort to find the best environmental context, if you wish, for the process and the durability of the flame—you know, things start moving and spark all over and so on—to assure that this does get to the optimal. It took the Atomic Energy of Canada scientist—who, by the way, is responsible for the Chalk River plant itself; that's his job—about nine months to come to the situation where you get about 4% to 5% radioactivity left over. This was so impressive that the principal scientists of Atomic Energy of Canada decided to go forward, and any week now we expect to have the tests on the real thing, real cobalt rods, not just small pieces and chunks and so on, where we have had good work. Of course, that's a commitment where we've used about \$200,000 just for the laboratory setting and all to think it through, and we hope to see good results.

We know that Yull Brown did that for the Chinese already. The plant where he made the first generators was adjacent to the nuclear facility the Chinese have for both military and commercial purposes. There, Yull worked successfully on uranium and plutonium, not just cobalt, and of course radium. The Chinese reported on this way back, about six years ago, if I remember correctly.

**The Chair:** Thank you very much. We appreciate your coming forward with this interesting technology.

## WHITMAN WRIGHT

**The Chair:** Our next delegate this morning is Mr Whitman Wright. Mr Wright, we have 10 minutes for individuals, so there is a total of 10 minutes for your presentation. Please state your name for the sake of Hansard.

**Mr Whitman Wright:** My name is Whitman Wright. Since I've only got 10 minutes and the topics I will be discussing are complex, I think I'd better start making use of those 10 minutes right now.

I am a retired civil engineer, a retired university professor.

I have been in the hospital for about 10 months, and this has affected my speech a certain amount, but I'll do my best. I hope you can bear with me.

When I was a young man, I designed the movable bridges for the St Lawrence Seaway. Later I had some experience moving radioactive material for the nuclear industry. I've also had extensive experience with the

Canadian Standards Association developing standards for the Canadian computer industry.

One thing our profession actively encourages is a readiness for us to attempt to look into the future and visualize the long-term consequences of our actions. I suggested this idea to my wife and said, "How would it work if I tried to visualize what the young lady sitting next to me would be like in another 50 years?" She did not want to pursue that topic.

My contact with the Ontario search for alternative energy sources began when I was watching television and became aware of the interest. I was already aware of the problem because in Ottawa, working with a small group of people who were concerned with the adequacy of our planet to handle the increasing population, we made an attempt to look into what the planet was capable of and what was being expected of it. We were not entirely happy with what we saw.

In the last 100 years—and I've lived most of that 100 years—the global population has multiplied by a factor of almost four; not two, but four. You can imagine the consequences. If we look around in the shopping mall and the buildings built in Ottawa, we can see the consequences. People have come out from all parts of the world and are looking for a place where they can live and enjoy the good things of life, and they look to Ontario. We in Ontario have to provide for these people. This requires energy, and lots of it. The magnitude of the demand is now overwhelming our conventional energy sources. We can't look to Niagara Falls any more to supply all of our energy needs. This goes on and on. We in Ottawa have to deal with the new congestion on our highways, and something that we used to call Winterlude, we now call Waterlude. The government of Ontario has quite rightly decided to look ahead for new energy sources. Whether it can find these sources and whether they will be affordable is another matter.

The two obvious potential sources seem to be wind and solar. We've heard of both of these. I couldn't really figure out what the gentleman preceding me was talking about; maybe you people can. That's my problem—I'm having trouble speaking, but I couldn't figure that out. We have received glowing accounts about how well wind and solar energy are working in Europe. We are encouraged to go the same way. We do wonder whether these two power sources, where the technology is known and could be implemented, would be adequate for the gap that is going to exist in the future between our ability to generate energy and the desire to use it. There is room for improvement. The technologies are reasonably well known. I have not personally examined these technologies in great detail, but I know this could be done, and the cost probably could be manageable. If it were otherwise, I suspect Ontario would not be asking us to come up with answers; they would have the answers themselves.

One of the advantages of both wind and solar is that these two energy sources are renewable. This means that somebody cannot get a corner on an oil well or on a



forest and pump out all the oil or cut down all the forests at once and have a big fire sale. The energy can only be acquired so fast. We can have maybe not as much energy as we want, but at least a continuing source.

An alternative that might be considered in one of its forms is biomass, but we also know that the world is wanting more and more food for its people. If you put corn into your gasoline, it's not available for eating. Anyone who has read the book *Who Will Feed China?*, written by Lester Brown of Worldwatch, will quickly realize that anything that competes in any way with the production of the world's food supply is definitely ruled out. We can't go in that direction.

1210

Another alternative is the hard-pressed nuclear industry, which would probably like to see us all go nuclear. The nuclear industry could certainly provide the industry, but it is intrinsically not a very safe kind of industry. We know that Ontario has avoided accidents up to this point, but we also remember Three Mile Island and Chernobyl, and we know that people are human. Of course, to jump a little bit to another field, but still analogous, the Walkerton report has recently come out and we have seen an example of human fallibility.

I see by the newspapers that some people are trying to involve Ontario in nuclear fusion. This is an alternative to nuclear fission, and some people say that this is a safer industry. However, it is up to now really an unproven technology. It's the sort of thing that Ontario could conceivably enter into an investigation of, in combination with other financial resources, because nuclear fusion is not only an untested technology, but it is also very expensive and we, the Ontario taxpayers, are expected to provide the financial resources.

The energy question has caused a great deal of confusion with the public. Certain individuals, such as the Danish economist Bjorn Lomborg and, earlier, Julian Simon, have added to the general public confusion by writing books that try to make the energy problem almost trivial. We know that this is not true and that these people's message, although it is very seductive, is really false and will lead us into a bad route. This issue has been taken up recently by the magazine *Scientific American*. Those of you who have been reading this magazine are aware of the objections that have been given by knowledgeable scientists to these individuals.

If we want to be practical, the most effective cost route would not be to attempt to increase the supply of power, but to reduce the demand. This would mean more building insulation and the conversion to fluorescent lighting—although, who wants that? But maybe we have to have it. We could also reduce the demand for motor fuel by providing more adequate public transportation, but this would be expensive, and who would want that? We would be looking for a future with more restrictions, more regulations and more expenses. These are all the consequences of unrestricted growth.

We have been very uncritical of the notion of unrestricted growth as the solution to all of our economic and political problems. Anyone who questions the doctrine of unrestricted growth is somehow labelled as an enemy of the people and is ostracized. But our Mother Earth has its limits, and is trying to tell us that if we want to survive into the future, we must be prepared to think a little more carefully and a little more deeply.

That's all of my presentation. I'm sorry if I haven't been able to speak too clearly.

**The Chair:** No, it's been just excellent. No problem at all. Thanks very much for the presentation. We are actually well over the 10 minutes so, again, thank you for coming forward. It was much appreciated.

The directions have been handed out for the visit. Everyone have copies of those.

I have just one short question that I was going to ask of committee members. I'm not sure if you presented or not, but certainly you two have had some very interesting visits over the last while. I wondered if maybe, when we reconvene—is it the 18th?—after we travel, we might have you present for 20 minutes or a half-hour or whatever, each one?

**Mr Gilchrist:** Absolutely.

**The Chair:** I'm just asking now so you can prepare. I think it's been asked that a written report be given, but I think it would be interesting to hear from you in a presentation. Are you comfortable with that?

**Mr Gilchrist:** Yes, totally.

**The Chair:** And you?

**Mrs Bountrogianni:** I'm very comfortable with that. I just finished the summary of that trip, so it's going to be available for the committee.

**The Chair:** OK, great. So maybe I'll have the clerk schedule in 20 minutes or a half-hour for each sometime during that week.

**Mr Hastings:** I have a report ready. I could have presented it yesterday in Toronto.

**Mr O'Toole:** Do it from memory.

**The Chair:** I think it would be interesting to have a discussion on it.

The other thing I've been discussing with our researcher, Mr Richmond, is looking a little further at some other policies that we didn't get in that report, looking at Denmark, Germany, Spain, Holland, and particularly how they got wind into place.

**Mr O'Toole:** Holland and Denmark are amazing.

**The Chair:** Yes.

**Mr Gilchrist:** Might we reflect on that? Three of us have an engagement that we're somewhat challenged to get to on time.

**The Chair:** By all means.

**Mr Gilchrist:** But we'll do that this afternoon.

**The Chair:** OK. The committee is now recessed until 3 o'clock.

*The committee adjourned at 1217.*







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### SELECT COMMITTEE ON ALTERNATIVE FUEL SOURCES

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Second Session, 37<sup>th</sup> Parliament

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Deuxième session, 37<sup>e</sup> législature

**Official Report  
of Debates  
(Hansard)**

**Monday 18 February 2002**

**Journal  
des débats  
(Hansard)**

**Lundi 18 février 2002**

**Select committee on  
alternative fuel sources**

**Comité spécial des sources  
de carburants de remplacement**

Chair: Doug Galt  
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## LEGISLATIVE ASSEMBLY OF ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCES

Monday 18 February 2002

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

COMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Lundi 18 février 2002

*The committee met at 1003 in the Valhalla Inn, Thunder Bay.*

## WIND POWER TASK FORCE

## ONTARIO WATERPOWER ASSOCIATION

**The Chair (Mr Doug Galt):** We'll call to order the select committee on alternative fuel sources. Thanks very much for attending and being here.

We look forward to our first presenter on the industry wind power task force, David Boileau, chair.

Mr O'Toole?

*Interjection.*

**Mr John O'Toole (Durham):** I'll recognize Lyn.

**Mrs Lyn McLeod (Thunder Bay-Atikokan):** I just wanted to take a minute of the committee's time to welcome you to Thunder Bay. We're delighted that you've come to Thunder Bay.

**The Chair:** Priorities first.

**Mrs McLeod:** Absolutely.

**The Chair:** Thank you very much. We look forward to our visit here.

**Mrs McLeod:** You're going to have a wonderful presentation because I know from many conversations with David that you are truly in the hands of the experts and that he has a very exciting report that has been tabled and made public. I have a little bit of a sense of the direction of the report, so I know you're going to find it a really informative morning.

I have to come and go a little bit. By pure coincidence, it happened to fall on the day that I had a little bit of personal media work that I have to do, so you'll understand if I come and go a bit—

**The Chair:** Well, not really, but—

**Mrs McLeod:** —but I do welcome you here.

**The Chair:** I'm halfway through his report and have been quite excited about it. It's neat stuff.

Mr O'Toole—are you interrupting Mr O'Toole's question, Mr Ouellette?

**Mr Jerry J. Ouellette (Oshawa):** I'd just like to congratulate the member for Thunder Bay-Atikokan on her years of dedication and the decision she's recently made. I know politics is very difficult for a lot of people. In this morning's paper we see an announcement from Lyn McLeod on her decision and I'd just like to congratulate her on her years well served as a member of the provincial Legislature.

*Applause.*

**The Chair:** My apologies, Ms McLeod. I missed the news this morning. I'm just picking up on it now. From the Chair, congratulations on a very exceptional career in politics going back to chair of school board—that's when I first met you—back in the late 1970s. We wish you the very best in all your future endeavours.

**Mrs Marie Bountrogianni (Hamilton Mountain):** Chair, I'd like to echo what everyone has said and also state that Lyn McLeod is the reason why I'm in politics. I first ran in 1995 because of Lyn.

**The Chair:** So she's the cause of all this?

**Mrs Bountrogianni:** She's a role model. Yes, she is.

May I have a copy of the report, as well?

**The Chair:** Certainly.

**Mr David Boileau:** My apologies, Mr Chairman. There were copies—

**Clerk of the Committee (Ms Tonia Grannum):** Yes, distributed at Queen's Park. Maybe people didn't—

**Mrs Bountrogianni:** I was told I'd get a package here.

**Clerk of the Committee:** OK.

**The Chair:** Our researcher, Jerry Richmond, would just love to have one up here. That's probably the most important copy to have.

May I return to Mr O'Toole's concern, or should we just forge forward?

**Mr O'Toole:** I would also like to reiterate what has already been said about Mrs McLeod and thank her for her input and insights into debate.

But really, if we could recess for 10 to 15 minutes to allow Steve Gilchrist—I believe his flight was arriving at 10 o'clock. He's coming up this morning and since we're only having one presentation here and he's very interested in the issue, with the indulgence of the committee, I'd ask that we recess for 10 or 15 minutes.

**The Chair:** I'm at the pleasure of the committee. I think we do have some open time into the noon hour, but I'm at the pleasure of the committee.

**Mr Boileau:** Mr Chairman, the agenda is quite flexible. We have a bus for the whole day. We can delay lunch for a few minutes. That's certainly not a problem from our end. If we're going to have a brief recess, it might give me an opportunity to show you a little bit about wind resource, if anybody wants to do that. It's not part of the official program, but we could use that time wisely.

**Mr O'Toole:** Excellent.

**The Chair:** Is there any objection to taking a recess until 20 after, at the latest, or when Mr Gilchrist arrives, and then we'll proceed?

**Mr O'Toole:** That sounds good.

**The Chair:** OK. The committee stands recessed until 10:20 or until Mr Gilchrist arrives, whichever comes first.

*The committee recessed from 1007 to 1020.*

**The Chair:** It is now time to return, and I call to order the select committee on alternative fuel sources. My apologies for interrupting, but the recess was until 10:20 or until Mr Gilchrist arrived, whichever occurred first, and coincidentally both happened at the same time.

We will now proceed with the first presentation, the industry wind power task force, David Boileau, chair, and Paul Norris, president. We look forward to your presentation. We've set aside two hours in total for the presentation and for questions and comments from the three parties. You may use as much of that time as you like in presentation, and then whatever is left over will go to questions and comments from the different parties.

The time is yours.

**Mr Paul Norris:** Thank you very much, Dr Galt, and thanks to the committee for coming all the way to Thunder Bay. I came up last night and enjoyed the trip as well. David has been down to see me a number of times in Toronto or Peterborough, so I thought we'd return the favour. It does give us an important opportunity to talk about renewable energy and to focus in on some specific policy recommendations, so thank you very much for coming to Thunder Bay.

David and I have organized the discussion today, with your indulgence, into five separate items. We've also asked, through Lois, that a tour of Kakabeka Falls be conducted this afternoon. Ontario Power Generation's regional manager and their public relations people are going to join us. Our plan is to have that immediately after lunch and to be back here at approximately 3 o'clock. That's kind of the plan for the day.

I'll be speaking specifically to water power, obviously. I'm with the Ontario Waterpower Association. I was last at the committee on August 30, and hopefully you have a copy of the Hansard for that particular discussion. I don't intend to reiterate it.

**The Chair:** Maybe I should make a correction on that introduction, that you're the president of the Ontario Waterpower Association.

**Mr Norris:** That's correct.

**The Chair:** It might be confusing to Hansard the way I did introduce you earlier. My apologies for the interruption.

**Mr Norris:** Thank you, Dr Galt.

I'll give you a brief outline of what we want to try to achieve this morning. I'll offer a brief review of the Ontario Waterpower Association, and specifically on water power's role in renewable energy. Our focus today is to talk about a renewable energy strategy for the province of

Ontario. That's really what we want to get to, but we want to put some context around that.

David will present the Wind Power Task Force that has just been provided to you. I wouldn't worry about not having had an opportunity to read it. He'll go through it in some detail, I'm sure.

Out of that, we want to specifically focus on the renewables portfolio standard as a market-based mechanism. We've seen a number of depositions—certainly I've followed Hansard fairly closely—on this concept. We've seen it from everybody from Pollution Probe to Sierra Club to ourselves to the Wind Power Task Force to IPPSO. I think it's something worthy of having a separate discussion on, and again David will talk about that.

I wanted to talk a little bit—and David and I will kind of tag team on this—about wind and water synergies. There are a lot of new developments, new research and new science with respect to how best to plan water power development in the context of wind power development. If we're on the edge of a renewable strategy for the province, we should talk about those two things together, I think.

Finally, both David and I have provided and I'm hopeful that you have received written comment to the select committee's report on the areas specific to renewable energy; in my case on water power, and David has responded on wind power. I don't intend at this point to go through each of those recommendations. What I'd like to do is talk about the general policy themes that appear to me to have come out of them, and some of the response from our association and from David's perspective.

We plan to take that to about 11:30. I would propose that the committee choose to have a break after the Wind Power Task Force, if that's appropriate, because the renewables portfolio standard is quite a detailed discussion and I think we'd all like to come back with fresh minds on that.

As I suggested, we plan to have about half an hour at the end for questions and discussion focused on any areas at all, in the presentation or any others, and then we have a tour of Kakabeka Falls planned for this afternoon.

My presentation is going to be on water power, Ontario's renewable energy advantage. When I was last at the committee, I talked a little bit about Ontario's water power industry, and to some degree about our contribution to economic objectives.

We're going to go to Kakabeka Falls this afternoon. Kakabeka Falls was built in 1906. Water power, as I said in my last deposition, has been in Ontario for about 150 years. Until about 50 years ago, it was our only source of electricity. The facility we're going to be viewing this afternoon is I guess almost 100 years old. It's currently undergoing a capacity upgrade, and that's optimizing existing electricity. We'll talk a little bit more across the piece about how water power can do that.

Just before I go on, I'll be referring throughout the presentation to some of the work that's been done



internationalement et quelque chose de ce qui a été fait au Canada. J'ai référencé la carte qui a été mise en place; celle-ci a été produite par Hydro-Québec. J'ai apporté pour le comité, le président, les chercheurs et les trois parties prenantes des copies du rapport international sur l'énergie et l'environnement, lequel est ce rapport. Je vous en donnerai une copie, la carte de Hydro-Québec et une analyse économique et environnementale que Hydro-Québec a faite avec respect à l'énergie. Je peux donner ça à vous, et alors je n'aurai plus à l'apporter ailleurs.

Brièvement, je vous donnerai un aperçu de l'énergie de l'Ontario. Je vous donne une idée de ce que je pense que les contributions de l'énergie sont pour les objectifs renouvelables. Je veux parler un peu de ce que j'appelle les trois E. J'ai vu trois E utilisés de trois ou quatre manières différentes devant ce comité. J'appelle l'énergie, l'économie et l'environnement. Alors je veux parler un peu de la situation pour l'énergie. Il semble à moi qu'il y a beaucoup de discussion autour de l'énergie verte, l'énergie renouvelable et le rôle de l'énergie de l'Ontario d'un point de vue politique est assez flou. Je veux simplement faire le cas de l'énergie de l'Ontario et de continuer à être une partie de la stratégie d'énergie renouvelable de la province.

Brièvement, j'ai fait la plupart de ces points à l'été, mais c'est juste une diapositive pour vous rappeler ce que nous sommes en train de parler ici en Ontario. Nous avons 8,150 mégawatts d'installations en Ontario. Cela représente environ 40 térawatts-heures, et c'est 26% de notre approvisionnement. C'est un composant substantiel de l'énergie de l'Ontario, et c'est notre source principale d'énergie renouvelable. Pour ce qui est de la situation, au Canada, en moyenne 64% des besoins en électricité du Canada viennent de l'énergie de l'Ontario. Cela nous place au cinquième rang au Canada, derrière le BC, le Québec, le Manitoba, et le Nouveau Brunswick et le Labrador, avec respect à la part relative de l'énergie que nous obtenons de sources renouvelables. C'est important, parce que je pense que dans chaque juridiction, dans le contexte de fédéral ou national, les initiatives associées à l'air, à la qualité, à vouloir faire des points autour de l'énergie renouvelable et de la façon dont nous obtenons de l'énergie de sources renouvelables.

**Mrs Bountrogiani:** Excusez-moi, quel est le numéro un?

**Mr Norris:** Québec. Je pense que c'est le Québec, le BC, le Manitoba, le Labrador, nous-mêmes.

Nous parlons à un certain point du nombre de centrales électriques de l'Ontario. Nous estimons qu'il y en a plus de 200 actuellement en Ontario. J'ai fait ce point la dernière fois. Le point important ici est que moins de la moitié de ceux-ci occupent des terres de la couronne, donc moins de la moitié de ceux-ci fournissent des royalties à la couronne. La raison pour laquelle il y a beaucoup de centrales électriques de l'Ontario est qu'elles sont utilisées pour être des moulins à farine, pour fournir d'autres types d'énergie, et qu'elles sont sur des terres municipales. Donc quand nous parlons de 200 centrales dans la province, nous avons à mettre ça dans le contexte de ce que nous sommes en train de parler. Nous ne sommes pas en train de parler de 200 chutes de Kakabeka et nous ne sommes pas en train de parler de 200 Silver Falls, ce que nous sommes en train de faire. Il y a une grande variété de centrales électriques de l'Ontario.

Nous avons une grande diversité de propriétaires dans la province. Le concept que l'ONG—oui, ils sont le plus grand joueur d'un point de vue de la capacité. Ils ont 85% ou 88% de la capacité. Mais il y a 60 propriétaires individuels ailleurs, comme M. Boileau, l'énergie d'Ottawa, Pembroke, Bracebridge et tout le monde. Il y a une grande variété de participants dans l'énergie de l'Ontario. C'est une très grande diversité.

**Mr O'Toole:** Président, puis-je poser une question pour clarifier la façon de procéder?

**The Chair:** Il est probablement mieux de laisser la présentation se dérouler et d'aller—

**Mr O'Toole:** Juste une clarification, avec l'indulgence de la Commission. Vous êtes toujours sur le sujet aujourd'hui?

**Mr Boileau:** Ma compagnie? Oui.

**Mr O'Toole:** Vous êtes en partenariat avec l'ONG ou avec qui?

**Mr Boileau:** Les Grands Lacs Énergie sont nos partenaires. Nous sommes entrés dans le réseau, originairement dans l'Ontario Hydro.

**Mr O'Toole:** Oui, c'est juste, à travers l'Ontario Hydro. Bonne nuit.

**Mr Norris:** Juste pour revenir sur le point de la dominance de l'ONG, la dominance de l'ONG a besoin d'être mise en contexte aussi, je pense. Nous avons déjà vu la dévolution de la complexité de Mississauga; c'est 490 mégawatts. Il y a aussi 200 mégawatts de ce système qui probablement ne sera jamais réalisé mais qui existe en tant que potentiel. C'est le système de Patten Post qui était une partie de l'aspiration économique de la ville d'Elliot Lake à un point.

1030

Quand nous parlons de la dominance de l'ONG, nous devons aussi reconnaître que nous avons un nombre de générateurs ailleurs. Nous avons les Grands Lacs Énergie, un générateur important. Algonquin est un joueur important; ils ont un nombre de centrales. Nous avons Abitibi, nous avons Inco, nous avons Domtar et nous avons Tembec comme industriels. Virtuellement toutes les municipalités sont maintenant une partie de l'association, donc tout le monde d'Ottawa à Bracebridge à Peterborough. Tous ceux-ci ont un avantage économique parce de leur énergie de l'Ontario.

Nous avons aussi un nombre de joueurs privés. Nous avons des individus qui ont des centrales de 500 kilowatts, nous avons des individus qui ont des centrales de 10-mégawatts et un nombre de nouveaux investisseurs. Nous avons des gens comme Suncor, qui a \$100 millions de nouveaux investissements dans l'énergie renouvelable et veut investir en Ontario. Nous avons d'autres alliances stratégiques dans ces types d'organisations. Nous avons les Premières Nations qui sont intéressées dans l'énergie de l'Ontario.

Je veux parler de futures contributions dans un certain contexte aussi. Selon où vous obtenez vos données et ce que votre source est et ce qu'ils comptent—I pense que c'est important. Quand nous parlons de ces 1,000 ou 2,000 connus en tant que potentiel dans la province d'Ontario—et c'est une déclaration que j'ai faite la dernière fois—notre évaluation, qui a été faite en 1998-99, avant l'ouverture du marché, était

that of that 1,000 to 2,000 megawatts, really only 200 to 300 megawatts was new development.

Even that new development was for feasibility studies that have already been done and environmental assessments that, to some degree, have already been undertaken. So that was known, realizable potential. We talk about redevelopment. We've already seen, for example, Ear Falls and High Falls in the Great Lakes Power situation. There's development in Bracebridge. People are reinvesting in the existing water power, and that's the largest single component of new potential that's known to be out there right now.

We're going to Kakabeka Falls this afternoon. They're doing an upgrade. There's 200 to 400 megawatts, in our estimation, across the industry in just upgrading existing equipment; so again, some context when we talk about 2,000 megawatts in new development.

There are a number of initiatives that have already been undertaken by the provincial government with respect to how water power can continue to contribute. In 1985, the Ministry of Natural Resources undertook to develop a database assessing the site potential across the province. Their estimations are that there are 2,700 megawatts of new potential in the province. Again, from an industry perspective we have serious reservations about whether that can be realized. But for sheer hydraulic potential and things like access to grid, that's their estimation.

The challenge with that existing database is that it is hugely inaccurate, it's nowhere near the sophistication of David's GIS technology and it doesn't include any attributes other than hydraulic attributes.

In the 1980s, the Ministry of Energy at that time undertook more than 200 feasibility studies across this province. It was called the small hydro reconnaissance and assessment program. The Ministry of Energy actually paid for site development potential. That database exists and we are currently reviewing its accuracy and bringing that up to date, so there is some potential there.

The real potential lies in the development of the Ministry of Natural Resources' allocation policy for new development. In the late 1980s, the allocation policy was basically a mining claim approach. We expect that to be changed. We have advocated that be changed to a request for proposal and that they don't necessarily focus on site specifics. They may want to focus on their own infrastructure, they may want to focus on optimizing existing managed systems or they may want to look at tertiary watersheds in a watershed context to see what the real developable potential is.

We know that there are First Nations' aspirations associated with water power. The only new developments that I'm aware of that are underway right now are on the White River; that's by the Pic Mobert First Nation. We know that Hydro One Remote is getting questions for remote community alternatives. I'm working with the Union of Ontario Indians on the creation of a First Nations' energy organization to consolidate their interests.

Some other context when we talk about energy: what's important to recognize with respect to water power—and the report touched on it to some degree in this notion of a life cycle analysis or full-cost accounting—is that from an energy perspective, water power is by far the most energy-efficient, cradle-to-grave, analytical energy producer. If you take the energy required to produce water power and the energy required to produce other forms of electricity, on a life cycle, full-cost accounting, cradle-to-grave analysis, I suggest it comes up head over heels in front of every other form of electricity.

I have a question there about the Wind Power Task Force because, with the new technologies and advancement in wind, I'm not sure what the number is but it's probably substantively more than it was, in May 2000 even.

**Mr Boileau:** If I could just comment on that, the Wind Power Task Force was analyzing the life cycle, because this is a very important point. Clearly, one of the reasons why water power is so far ahead is because it's got good capacity factors and the darn stuff lasts about 100 years. It can last indefinitely with reinvestment. The wind power statistics that we had dated back to 1998, when the availability and capacity factors and some of the siting issues hadn't properly been addressed. At that time, I think it was listed in at 20. I can't give you an accurate number on it right now, but it appears from other industry information we have that it's around 40 or 50, which would rank it second, effectively, depending on how we calculate the life cycle cost of nuclear.

This is a very important point that Paul is raising: life cycle analysis. Energy in equals energy out. So one unit of energy in and getting 150 units of energy out on water power is a huge thing. Wind power has come up an awful lot. It will never get close to water power but it will be the second best in that equation.

**Mr Norris:** Again, you can find that information in the document I provided to you. The international energy association published those statistics in its May 2000 report.

**Mr O'Toole:** With the indulgence of the Chair, this has been an issue—

**The Chair:** No, not until they have finished their presentation.

**Mr O'Toole:** It's almost too—

**The Chair:** No.

**Mr O'Toole:** Fine. I'll ask the question afterwards.

**The Chair:** Thank you.

**Mr O'Toole:** This is going to be a two-hour presentation, Mr Chair. With your indulgence—

**The Chair:** I know. Let them make their presentation and then ask your questions.

**Mr O'Toole:** Mr Chair, if I may, I'm not challenging the Chair. This is a fundamental issue, the life cycle cost issue. I will raise it afterwards, but we have two and a half hours. We have a full day with one presenter. I don't get your point. You are the Chair, so—

**The Chair:** The point is, we'll let them present and then we'll ask the questions.



**Mr O'Toole:** See you later.

**Mr Norris:** My second point on energy, and again it's contextual information, is that water power development across the province is strategically located. We have 70 plants in what we call northern Ontario and 130 in the south and east. There are a number of industrial-municipal advantages that are related directly to the location of water power. In the northwest part of the province almost every town or city is within a half-hour drive of a water power facility.

It's an indigenous supply. It's a made-in-Ontario solution. It's a secure supply. It offers energy attributes associated with voltage stabilization and it's there for Black Start support. Water power can start quickly and it can meet load demands and energy demands more quickly than any other source of energy. It also offers a built-in battery. It can meet peak demands. It can have synergy with wind. We can manage our reservoirs in a way that follows loads and we have enormous pump storage opportunities that have yet to be explored.

This is Silver Falls in Thunder Bay. This was built in 1959. It's a 43-megawatt facility. It's part of the complex that we're going to on the Kakabeka Falls system. Some 50 years later, Ontario Hydro thought it appropriate to optimize that system by building that facility. It's just another example of continued development of water power over the last 100 years.

The second E is economics. I wanted to remind you that relative to other resource industries in this province, water power is the single largest contributor to the consolidated revenue fund. MNR has estimated—and this is from the MNR socio-economic fact sheets—that mining is about \$65 million. Forestry averages between \$125 million to \$150 million—I should say that doesn't include the forest renewal fund; that's stumpage. Water power, particularly with the new 9.5% GRT, is going to average about \$150 million a year. It's the single largest source of resource royalties to the province.

All other energy sources are not indigenous. Even if they do occupy crown land, they are not assessed for their energy value. They don't contribute anything to the CSR from a resource royalty perspective.

I want to make a point about the contribution of new water power. I talked about 1,000 megawatts or 2,000 megawatts potentially. Bill 140 introduced a 9.5% gross receipts tax. If you do the math, I just want to point out that every new megawatt of water power that comes on is another \$22,000 to the consolidated revenue fund.

Briefly, other economic attributes: I wish to make some points on what we're worth. We've got \$1.6 billion in average annual revenue generation associated with water. That's at four cents a kilowatt hour. The infrastructure in the province with water power alone is estimated to be about \$15 billion. I talked about the individual owners, so we've got a wide variety of people who are in this business.

**1040**

To develop a new site today, development costs are around \$2 million per megawatt depending on the design,

but that's an industry average. So you're talking about 1,000 new megawatts or 2,000 new megawatts. We've seen \$100 million in redevelopment in this province since Bill 140 was announced. We've seen announcements in the northwest, in Ear Falls; in Sault Ste Marie, in High Falls; on the Trent-Severn where I am, in Peterborough; and most recently, in Bracebridge. It's largely related to the better business case being allowed to be made as a result of the levelling of the taxation playing field.

We should also recognize that any of the development we've seen in the last 15 years on 150 megawatts was all made-in-Ontario development. More than half of the new development was in northern Ontario and all the money that was spent was spent predominantly in northern Ontario, in this part of the province and across the north. So we have the infrastructure in Ontario to service this industry.

Mr O'Toole, this will make your point again when we come back to this. This again is on a full life cycle cost-accounting process, from an environmental perspective this time as opposed to an energy perspective, and I know you want to talk about the economic perspective. Again, my source is the document I've provided you with, the international energy association. What I've attempted to do is to pick out their Canada statistics. The summary report you have offers a wide range, and I don't think that's particularly helpful. Science continues to evolve in this area.

The point I want to make here, though, is that there are often discussions around the environmental attributes associated with reservoir-based water power versus non-reservoir-based water power. From an emissions perspective, they are practically the same. If that's your environmental context—and I'm the first to say that shouldn't be your only environmental context—if the discussion and the policy considerations are associated with emissions, these two are indistinguishable and any mechanism that discriminates against storage-based water power in the context of emissions is flawed.

I want to talk a little bit about where we're going with environmental attributes. As I said at the last meeting, we have a new business relationship, we are calling it, with the Ministry of Natural Resources. Mr Ouellette made a point last time which I think is worthy of raising again. What opening the electricity market means for this industry is that every facility in the province has to undertake a water management planning exercise with their local community and stakeholders that balances socio-economic and environmental attributes. That was felt to be predominantly the job of Ontario Hydro in the past, in the public policy mandate. That is now a legislative requirement in the Lakes and Rivers Improvement Act. The object of those exercises is ecological sustainability from the Ministry of Natural Resources' perspective, and from the industry's perspective for that matter.

I'm sorry that Mr Bradley isn't here but he made a point the last time around about environmental assess-

ment. The point about environmental assessment in the new electricity market is that every facility in the province that undergoes a significant redevelopment or any new development, regardless of whether you occupy crown land or not, is subject to environmental assessment. Previously that was not the case. Previously the Ministry of Natural Resources dealt with environmental assessment through an exemption order associated with disposition of rights to crown resources.

Our organization, working with the Canadian Environmental Assessment Agency, the Department of Fisheries and Oceans, the Ministry of Natural Resources and the Ministry of the Environment, is proposing to develop a class environmental assessment for water power modelled after the existing regulation but broadening the mandate to include the responsibilities of other agencies. EA, in and of itself, will not address environmental considerations.

We are also committed to new science and knowledge. The Ministry of Natural Resources, with ourselves involved, has just released a science strategy. The science strategy commits the ministry and the industry to long-term effectiveness monitoring of water power facilities in the province. We're in partnerships with the academic community and the Department of Fisheries and Oceans. The fundamental tenet around water power and the new reality is that we take an ecosystem approach to water management.

My personal view is that the water power program in Ontario will become the model for local citizen involvement in water management planning whether or not there's a water power facility in the province. Water power facilities account for fewer than 25% of the infrastructure on lakes and rivers in this province.

Next is the case for water power. Again, you'll find this in your report. This kind of ties it all together nicely, I thought. This is again out of the technical report, so I'm going to quote it specifically.

"The exceptional ancillary services provided by water power—reliability, power on demand, electricity available in a few minutes from a cold start, energy storage in reservoirs—make water power a possible producer of baseload, of peak load, of voltage and frequency regulation, of energy storage and of other services. These ancillary services are not always available with other power generation options. They must therefore be considered and integrated into the comparative analysis of electricity production options."

I think that ties it all together very nicely.

Finally, the case for water power really is that industry can deliver. If you have a renewable energy strategy in this province, our industry can make it happen. We certainly contribute to it. We had 150 megawatts in new development in response to Ontario Hydro's 1980s demand-supply projection. When they asked this industry to bring new development on-line, Mr Boileau and others did. We have significant new development already underway. It talked about Ear Falls, High Falls, Muskoka, Trent. We're going to see more than 60 new

megawatts just in redevelopment alone in the next year or so and \$100 million in new investment.

I think we have strong public support. I referenced in my submission last time, and I reiterate it this time, that consistently public opinion polls that are done in the context of environmental concerns associated with electricity generation support water power. International studies have been done. There was one done in 1999 across Canada by Environics. Most recently, there was one done in August 2001. There are environmental concerns, absolutely, but when you ask people to assess the relative merits of renewable generation, including water power, against others, consistently they support water power, provided it's developed in a socially responsible, environmentally considerate fashion.

The other thing that's going to make water power have strong public support is this water management planning concept. It's a public process. We're seeing it all across the province right now. On the Madawaska we've seen it, on the Michipicoten we're seeing it, on the Montreal River we're seeing it, in Abitibi. Local citizens' committees are getting around water management the same way they got around forest management, by actively involving themselves in decisions that affect their communities.

The biggest case for water power is that the model already exists. This isn't anything new. Government already has the model but it needs long-term commitment. We have a new business relationship with the Ministry of Natural Resources. That was put in place for a four-year time commitment, predominantly to deal with the opening of the market. It's a long-term requirement. Water management planning, new site development, all the things that are going to make a renewable energy strategy happen, are not going to go away in two, three or four years.

The biggest case we can make is that we have, and do offer and continue to offer, significant revenues to the province of Ontario through water power royalties. In the context again, if you were to do an analysis of the relative contribution of the forest industry and the relative government investment in the infrastructure associated bureaucratically with supporting that industry, you'd find a disparity. I'll leave it at that.

My final slide is Valerie Falls generating station. It was built in 1994 in Atikokan, Ontario, by my friend on the right. That will be my segue to Mr Boileau and the Ontario Wind Power Task Force. At the Chair's discretion I'll entertain questions, either now or at the end of the entire presentation.

**The Chair:** I need a clarification on your plan for the two hours. This has been water, then you have wind and then you want to talk about RPS?

**Mr Norris:** That's right.

**The Chair:** How much time would you like to set aside for each block? We're a half-hour now into the—

**Mr Norris:** I anticipated that mine was going to be 20, 25 minutes.

**Mr Boileau:** I think we're fine for half an hour at the end, Mr Chair.



**The Chair:** Do you want to take all questions at the end?

**Mr Boileau:** We can, although if there are points of clarification as we're going to through wind power—because there are a lot of areas of unfamiliarity—I don't mind making points of clarification, but I have a lot to cover.

**The Chair:** How would it be if I gave five minutes to each caucus and then we move on?

**Mr Boileau:** Yes.

**The Chair:** OK. Beginning with the official opposition.

**Mrs Bountrogianni:** Thank you for an excellent presentation. In the IEA report—and I actually made a visit to the IEA when I was in Europe in November. The considerations that are also in this book came up at that meeting; in this new era of globalization—not so new but at least newly labelled—and our responsibility for the less developed countries. Environmental assessments are different from country to country. Could you comment on that—in fact, the ethical considerations which are in this report and which I think you partly covered. I guess in Canada or in Ontario the ethical consideration of what the development of this type of energy does to poor rural areas.

1050

**Mr Norris:** It's an excellent point; I don't think you can paint a broad brush on environmental assessment. I think in fact the background studies to that report offer far greater generic observations with respect to the social implications of water power development with respect to including in assessment the natural flow regime, for example, of the existing river.

I would agree with the general direction that the more detailed report provides. It provides, I think, a fairly solid thought process, basically, for new development. It's not a prescription that says, "Here's how new development would happen," but it does offer some key considerations with respect to new development, and some of those, in the development of a class EA—the challenge with the existing environmental assessment process in the province is that it covers the whole sector. We know from experience in Ontario and across Canada in water power development that there are sector-specific issues that need to be resolved. We know that in water power development in this part of the province in the next 20 years, First Nations are going to be key partners or are at least going to be key to be involved in the development of new activities.

Our rationale for working on a class environmental assessment isn't that we need a different process. We could bring together the various legislative processes by working with the ministries. Our rationale is that it's the right thing to do, to involve those other stakeholders in the design of a process that ultimately is going to affect them. So I would agree that you can't paint all environmental assessment the same way, and we're hoping as an industry that this class EA approach gives us an opportunity to formally engage those other partners in the issues that are of consideration to them.

**Mrs Bountrogianni:** I would concur. Thank you.

**The Chair:** Mr O'Toole, and Mr Ouellette has also asked for some time.

**Mr O'Toole:** I'll pass, thank you.

**Mr Ouellette:** First of all, you mention about the life cycle, and for the water power it was 150 years. Is that one of the problems in that, making sure that upgrades are coming forward on a regular basis, because the life cycle of that particular facility is so long that we're not utilizing new technologies within the facility?

**Mr Norris:** There are two life cycle analyses. The life cycle analysis that's associated with energy payback is the relative energy in versus energy out. So if you had invested a unit of energy into the production of this, how much energy would you get out of it over the life of the facility?

In the life cycle analysis for the lifespan of a hydroelectric facility, it can, I would say, average 75 to 100 years. We're going to one today that's 100 years old. I think the business cases for reinvestment in the existing facilities are always made, and that's why I think you'll see, out of that 1,000 to 2,000 megawatts that could come on stream, that the companies that already have facilities are probably going to look to invest in making sure they optimize the energy they get out of their existing facilities.

**Mr Ouellette:** They haven't in the past?

**Mr Norris:** It's a continual process. It's going on at Niagara Falls right now.

**Mr Boileau:** Can I add to that a little bit? That's a really interesting point. If you can't make a business case for investment in an old plant that's running well and has reasonably good efficiencies, how do we trigger investment decisions that take advantage of capacity improvements and efficiency improvements?

Clearly when we get into renewable portfolio standards and the value of renewable energy credits, it's absolutely critical, if we're going to apply them to wind power as a renewable, that we also look at having some value for water power similar to that REC value for wind power, so that when you run through the business case, whether it's the Beck tunnel or Kakabeka Falls—I'll give you an example. Kakabeka Falls just spent \$21 million putting a new penstock in because the old one was rotting out. We're going to drive around it today. At the same time, there probably would have been a business case for redeveloping the turbines and getting 20% to 25% more power and energy out of that facility over the next 50 years, except that at the time a business case couldn't be made because the market price for power, for electricity, is four or 4.5 cents. If we added another 1.5 or two cents because of renewable energy credits, that project would have been done three or four years ago, at the same time that it was shut down.

One of the problems with redeveloping hydroelectric stations or water power stations is that it takes a long time to do it, so you lose that revenue stream while they're shut down. You need enough of an incentive, and we speak to that a lot today, Jerry, in our presentation.

**Mr Ouellette:** I know Mr Gilchrist has a question.

**Mr Steve Gilchrist (Scarborough East):** It's a fairly brief one, but one I'd like to think cuts to the heart of why we're up here today. We're certainly excited and pleased to hear of the developments not just within your association since we last met, but the application of your technology at sites across the province. But the committee is charged primarily with how we move beyond the status quo, and that would include decisions that have already been made, based on bills such as Bill 140.

You talk about 2,000 megawatts of potential power creation. To what extent will that be realized anyways in the current regime? To what extent would new developments—you talk about an MNR report done in 1985 that suggested 2,700 was a more reasonable upper limit. To what extent can we move that yardstick to help us as we search for a path that has a far more benign effect on the environment?

**Mr Norris:** I'll speak first to Bill 140. Bill 140 really fixed an inequity from a taxation perspective. With the exception of the existing 10-year holiday on new capacity that has long been in place by the Ministry of Natural Resources for water power royalties, it fundamentally just addressed a problem as opposed to providing a specific incentive.

When last we had water power development in this province—I guess a roundabout way to answering your question—between 1987 and 1993, Ontario Hydro was paying six to eight cents a kilowatt hour. We've got a four-cent kilowatt hour. Bill 140 isn't going to change the value of electricity; a renewable portfolio standard might. We think it's probably the best market-designed system to deal with the value of renewable energy credits. So the realization of that potential I think is very dependent on the value of renewable energy in the open market. If you can build something cheaper, why wouldn't you?

**Mr Gilchrist:** Let me abbreviate my question to something far pithier, then. Of the 2,000 that you've shown on this chart right now, what number of megawatts are coming on stream anyways, no matter what this committee does?

**Mr Norris:** A hundred right now.

**Mr Gilchrist:** I thought you suggested there's a number of other projects that are in the final stages of planning.

**Mr Norris:** No. I'll go back to that. The 200 megawatts of new development potential represents sites that have already gone through some kind of assessment. What the MNR database talks about is, in the 1970s and again in 1985 they did basically a hydraulic analysis of flow and head potential in the province based on extrapolations of drainage areas. We know there are a number of other influencing factors that affect the potential for water power development, not the least of which is access to transmission, forest cover, other hydrologic information, a lot of which has come leaps and bounds in the last 15 years from a GIS technology perspective.

So their estimate of 2,700 megawatts I don't have a great deal of confidence in unless we get to the same kind of stage as David's earlier presentation on knowing what the real wind resources out there—if we know what the real water resources are out there, we can have a better understanding of its potential. So there is no relationship generally between the 200 megawatts of new development and the 2,700 megawatts in MNR's database or the Ministry of Energy's 200 sites that they did assessments on in 1987 to 1989.

**The Chair:** Thank you very much.

We now need to move on to hear about wind. They tell us there's a lot around Queen's Park.

**Mr Boileau:** Well, Mr Chairman, I've been accused of having my share of it as well.

Welcome to the world of wind. Perhaps before I start, I'd like to give a more formal introduction of my assistant, Lois Chevrier.

**The Chair:** Do you have a similar handout?

**Mr Boileau:** I don't, Mr Chairman, because I did provide copies of the Wind Power Task Force report and I also did send a response to the interim report from the subcommittee.

**The Chair:** Thank you.

**Mr Boileau:** I should mention that I've been involved in the water power industry for a long time, and I think at the end of our presentation today you'll see why Paul and I decided to do a tag-team presentation here, because there are great synergies. The only difference between wind and water is the density.

In any event, I began in 1994 with the commissioning of a \$23-million hydroelectric project in Atikokan, a water power project called Valerie Falls. Over the years there were a number of areas of concern that I had with respect to the water power industry, and in 1998, with a number of other industry players like OPG and Inco and Great Lakes Power and Abitibi, formed a group called the Ontario Waterpower Task Force. Then a few years later, in late 2000, I got involved in the wind industry and again felt that there was a need to work with government. We formed, with other industry members, the Wind Power Task Force. I'll give you some more details on that.

The lady to my right, Lois Chevrier, was largely responsible for organizing both of those task forces and also saving us on the technical glitches that we run into and for putting together the very professional and well-organized packages that you have in front of you today, as well as the slides. So thank you, Lois.

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**Mrs Lois Chevrier:** Thank you.

**Mr Boileau:** This task force report was actually completed in October, but we had to do some consultation, so we'll jump right into the report. There's a fair bit of information to cover. I think you'll find it very interesting.

By the way, I want to thank the committee for coming to Thunder Bay. I've been to Toronto 73 times, I think was the count, for the Ontario Waterpower Task Force,



the formation of the Ontario Waterpower Association and the Ontario Wind Power Task Force, and I really appreciate you folks coming up here today.

Our outline is, wind, is it a real business or just more air? I saw an article once in the *Economist* that said, "Maybe this time," because wind has had a lot of promise over the years. Their question was, "Maybe this time?" I think the answer, clearly this committee knows, is yes. It's not just more air, and I'll give you some reasons why.

It's important—and we've spent a lot of time on it in our report, which a lot of reports don't do—to give some background to the average person so they understand some of the science and technology and developments behind the wind resource and wind energy development. We're going to talk about why we formed a task force and how it was structured. Again, I think it's important, when looking at the results of a report, to understand what the terms of reference of the report were. We're going to go through 15 key recommendations; one of them, the renewable portfolio standard, we're only going to touch on because we have a separate segment on that after the break, and then we'll summarize.

Just to start off, you may have all heard of the vision of the Canadian Wind Energy Association, CanWEA, 10X10, which is to install 10,000 megawatts of wind power capacity by 2010, thereby providing 5% of Canada's electricity from wind. This is equivalent to about 30 million megawatt hours of electricity per year based on current forecasts, sufficient to meet the electricity needs of nearly four million homes. That's a pretty significant number.

So, is wind just more air or a real energy alternative? Well, it's now the leading source of new renewable energy due to significant technical advances and better product reliability. It now has an availability, if the wind is there, of 97%. That means if the unit is available and the wind blows, it will produce electricity, whereas 20 years ago these things were broken down an awful lot and they had availability factors of around 25% or 30%, thereby proportionally increasing the costs of electricity generated. This is a huge advance. It's only second to water power, which I think has an availability, in new plants, of around 98%.

Advances in wind park siting and tower design are the biggest contributors. Back in around 1985 they had pretty well figured out how to get the energy out of it. Then they had to figure out how to get the towers higher in the air and how to make sure that they worked consistently.

There have been dramatic reductions in the price of turbines, installation and maintenance, and the reason for that is the old learning curve theory: if you double a product in the field, you reduce costs by 15%. If you make one car and it costs you \$100,000, if you make two, you reduce it by 15%. The only problem is that it gets more and more difficult to double the number of units in the field. Today, I think we have 30,000 or 40,000 turbines in the field in the world. If we go to 60,000, then we'll reduce our costs by 15%. So you can see that over time you're going to see some dramatic reductions. Part

of that reduction is siting and tower height. You're getting more energy out of each installation; you're getting into higher wind speeds.

There are rising electricity prices. Clearly, wind becomes more attractive if electricity prices rise.

There are increasing constraints on fossil generation. In other words, societies, industries and economies have to make choices, and if one of the choices is to have cleaner air, one of the tools to achieve that is to have caps on emissions. If you cap emissions, then money has to be spent to reduce the NO<sub>x</sub> and SO<sub>x</sub> emissions, pull mercury out of the air in the future, and there's also going to be a cost for CO<sub>2</sub> emissions. So these constraints are making it more attractive to look at other alternatives and offsets like wind and water power.

There are government incentive for renewables, again clearly reflecting government's policy priorities and the demand of the citizens for government to do something about air quality.

There are energy security concerns, the recognition of the benefits of the utilization of indigenous resources. We could say North America-wide that it would be nice to get off of Middle East oil, from a strategy standpoint. In Ontario, we might say it would be nice to get off of Alberta gas, Saskatchewan coal, Saskatchewan uranium or Pennsylvania coal; it would be nice.

Just a brief recap about what's in the world: Germany is clearly the leader, and not because they've got great wind. Their winds in fact are not very good; I think the average is around 6.7 or 6.8 metres per second. But they made a decision that they were going to try to establish 5% as a target for wind energy contributions to their total electricity mix. They did it with a feed-in tariff. I think they're now examining that and looking at other ways of achieving that objective.

Spain is coming on just gangbusters. There's a tremendous amount of investment there in a new manufacturing plant: blades, towers, turbines.

The USA, with the production tax credit, is the fastest-growing market right now, or pretty close; maybe Spain and the US are close together. The total is about 13,000 megawatts in the year 2000. That's probably up another 3,000 or 4,000 today. The forecast to the year 2005 is close to a tripling of that amount.

In Canada we lag, clearly. That's not necessarily because we're so far behind; it's just that we haven't had to make those choices. We have had abundant supplies of natural gas and water power in our country, and that has, by and large, taken up an awful lot of it. But we have kind of been sleeping at the switch in terms of paying attention to what's going on in the world. To a certain degree, that's reflected in the fact that we've got only 200 megawatts of capacity, and only four in Ontario.

So what are the big objections to wind power? We hear them all the time: "Yeah, but what are we going to do: turn the lights off when the wind stops blowing?" This is a very common, and unfair, criticism of wind. I think by the end of today you'll agree that it is absolutely irrelevant and meaningless. There is no source of elec-

tricity that has 100% capacity, 100% availability and/or 100% efficiency; it doesn't exist. Every one of them has different features. For example, wind has great efficiency in terms of capturing the available potential energy, and its availability is great; it's just that its capacity factor isn't that great.

Uranium—and we can talk about availability. I'm not going to spend all day talking about the availability of Pickering or the Bruce stations or the future availability of Darlington, but you can see that not only is the efficiency not that great in terms of heat conversion, but the availability, at 80%, is probably high, and the capacity factor is relatively low.

Coal has terrible efficiencies. Most of the heat goes up the stack or into a cooling loop. Its availability depends on the age, obviously, but that's an average, at 80%, and capacity factors.

I'm not going to go through each and every one of them. Natural gas, I guess, everybody assumes is a magic bullet that's going to save us all. Well, it's not that great either. The conversion efficiencies are poor. The availability is better because of modern technology and gas turbines. Capacity factors aren't that high. Water power is pretty strong on all fronts. Landfill gas is going to be in the range of what natural gas would be.

It's important to remember that there are no magic bullets. There is not a single source that's really, really dependable, with the exception of water power, and it has its challenges too, in terms of drought and seasonal pattern changes.

No form of generation, to repeat, has 100% availability, efficiency or capacity factors. Modern wind turbines are capturing about 85% of the theoretically available energy. You can't get all of the energy out of the wind because, if you remember your old days with the pinwheel windmill, if you turned it directly into the wind, it would stall. The reason it stalls is because there's no movement of air behind the windmill. So you can't have 10 metres a second coming in and zero coming out, because it won't turn. So there's a balance point—it's called Betz's Law—that determines how much energy you can get out of the wind.

Our industry today is a mature industry, because we're getting about 85% of what we can theoretically get. It would be foolish for our company to invest money in an industry that was only 50% mature, in terms of technology. But now we're at 85% and approaching 86% or 87% maturity, in terms of the technology as far as being able to get it, and so now is a good time to start investing and putting some significant dollars into this industry.

It's true that wind doesn't generate in low winds or very high winds. You hear about some of these places out in BC where they have these tremendous winds. You know what? Projects will never go ahead there, because they'll be shut down during high wind periods; if they tried to operate, they'd blow right over. They have to default off and those blades have to pitch into the wind just like in a stall technology. High-high winds are no good and low-low winds are no good. What's Ontario

got? We've got medium-high winds. We've got some pretty good resource; we'll talk about that later. However, all the studies indicate that wind will generate some power more than 75% of the time. So if we go back and look at nuclear and we look at gas and we look at water power and look at all these other ones, there's some similarity there.

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Nuclear has some scheduled and unscheduled downtime. Coal only uses 33% of the energy. A lot of the waste heat goes up the stack and into cooling circuits and lakes and sometimes causes some problems.

Natural gas is an interesting one. Again, everybody focuses on natural gas being the magic bullet that's going to save Ontario. "We'll just convert all our coal plants to natural gas and that will be it." The reality is that the pricing of natural gas and the availability of natural gas are great unknowns. Another factor is that every time the price goes up, if you're a gas seller, you'll want to not produce electricity, you'd rather sell it for its heat value, so it gets removed from the grid. Unless you're tied into long-term contracts, which are going to be expensive and difficult to get, you're not going to be able to predict your production from your gas units. If you have short-term contracts, you're not going to be able to get financing to build these things. We hear a lot of talk about natural gas in Ontario, but tell me how many projects have actually broken ground right now. I'll tell you there are not very many, and the reason is that when you go to the bank, as I have lots of times for projects, you've got to have a long-term contract for gas. If you do, today, these guys are saying, "We want a big price for it."

Finally, with water power, rainfall varies season by season and year to year.

The point is that nothing is perfect, so what's wind got to offer?

There are some interesting things we found about Ontario winds, and it doesn't happen everywhere. We've got a unique situation. We've got a large, flat area over the Great Lakes. We've got a diurnal effect associated with the warming and the cooling of the air and the water, seasonally and daily. When we analyzed some historical data—the reason we were able to get some data on Ontario is that the US Army Corps of Engineers put up many hundreds of buoys around the Great Lakes and around the coastal areas of Canada to determine wave hind forecasting. The reason they wanted to do that was that after the Edmund Fitzgerald went down, and before the Edmund Fitzgerald went down, they wanted to have a good idea of what the relationship was between wind speeds and wave heights, and it had a lot to do with erosion and shipping. The consequence was that they gathered 30 years of data, from 1954 to 1984. We took those many millions of pieces of data, because it was every 10 minutes, and we ran them through a computer program to determine where the good wind speeds were in Ontario. We found not only that there were some interesting areas, but there was a high consistency to the



wind speeds across these areas. So wind, we think, is quite predictable.

There are some features of Ontario's resources that are really complementary to the wind energy industry. If we can find a way of predicting what wind can do and when it will do it, it enables the IMO and the pool and competitors, competing sources of electricity supply, to forecast what we're doing. In other words, would you say wind is intermittent if I could tell you 50 hours out exactly what the wind speeds and the wind energy production would be? It's not intermittent if you can predict it, because then you could fire up some gas units, you could fire up a coal unit, you could get a hot boiler ready to produce electricity. So if you can predict wind and you can predict the wind energy from it, that is almost 100% of what you need in order to bring it into the electricity mix.

So we looked at the summer wind speeds, and the purple line is your energy output from wind based on some historical trends in Ontario. I think we used the Goderich airport wind tower as a baseline. The dark blue line is the demand in Ontario in megawatts. You see over the 24 hours a rather interesting match-up between the output from the wind park and the demand in Ontario. The same thing happens in the next slide, which is January. It's a little bit more compressed, but you can see it there.

The other thing that's interesting is that a lot of people believe that Ontario is a summer-peaking jurisdiction. Occasionally, a summer peak does occur when you have low temperatures in the wintertime and high temperatures in the summer, but we're still a winter-peaking province, and IMO predicts it will be a winter-peaking province for the next eight to 10 years. So what do we have to have capacity for in Ontario? We have to have electricity-generating capacity to meet the load on the worst possible day. It's interesting that on the worst possible day, over the last 10 years in terms of demand in the wintertime, wind was producing almost three times what its normal production would be. Why is that? On a cold winter day it's windy—high wind speeds, cold temperature. A cubic metre of wind, or air, is more dense in the wintertime than in the summertime. So we'd get basically maximum production out of our wind turbine parks in Ontario, if there were some, on the days that we need it most, another good match-up for Ontario wind.

What about long-term? I talked about the US Army Corps of Engineers' analysis that we did. These were two sites, two buoys that we analyzed over a 30-year period, and you can see a very small variation in wind speeds. There are cycles where wind speeds are higher for a few years and lower for a few years. We're just on an upturn right now, hopefully, for 10 years or so; it would be very handy. So you can see consistency.

I talked just a few minutes ago about predictability. The company that we work with, AWS Scientific out of New York, is now selling forecasting programs to California and other states, including Texas, where wind energy is a big item, and they're selling for a big price,

every day, this graph, which they update on an hourly basis so that the individual companies and the state IMOs can forecast what the production is going to be from wind. On a hot summer day, air conditioning loads would depend very much on wind. So the utilities use this information (a) to determine what their load might be, but (b) to determine what the supply is. That's a graph that predicts 40 hours out. That's an old one, about a year and a half to two years old. They're now up around 60 hours out. The two items on the graph are what's observed and what was predicted. The observed was from a natural tower reading at a meteorological station called Wilkes-Barre in Pennsylvania, and the predicted is the prediction of this model that they have. Pretty good, eh? Even in the areas you see where there's a divergence, it's usually a divergence of hours, and that's all. Where you see wind predicted at a higher speed or where the observed speed was higher, it may have been just a slight anomaly in time over the prediction. But it's just an amazing tool.

We talked about predictability: if we can predict it, then it's not intermittent. If we can understand its features in terms of day, week, month, season, year and decade, that's great stuff, but what does that do for us in terms of cost? "How big is the gap?" everybody asks me. "What have we got to do to get this wind off the ground? How much do we have to pay? How much are electricity rates going to go up? What's going to happen to our industry?"

Let's look at costs. The biggest problem with costs is that everybody compares apples to oranges. They say, "Gee, you guys are telling us that wind power is going to cost six, seven or eight cents; the market price for power is 4.5 cents." That's true, the market price for power is 4.5 cents or somewhere around there, but what is the market price for power? That's power from Niagara Falls, it's power from some of the old coal plants, it's power from old, depreciated facilities that have low-cost production. Clearly, Niagara Falls is the cheapest place to develop water power in Ontario; Valerie Falls wasn't. The cost for developing a megawatt hour of power and getting a gigawatt hour of energy out of Niagara Falls is a lot lower than the new projects that have been developed, because all the good ones have been developed.

So in the case of looking at electricity costs, we can't compare a new capacity or a new megawatt today to one that was built 30, 40, 50 or 100 years ago. We have to compare apples to apples. If you ask me to go out and finance a gas-fired project today, I'll tell you I need to have about six cents to finance a gas-fired project today, at least, on average. We should be comparing not the 4.5 cents to what we need for wind but what the competitive costs of new generation are in this province. If we were to build a new nuclear plant or if we were to build a new coal plant, God forbid, or if we were to build a new water power plant, if the price of new capacity averages six or seven cents or five or six cents, then that's the gap we're looking for. That's an important point.

So I'm saying here that conventional new energy costs range from four cents to seven cents, depending on the

source, whether it's from gas, water, coal or nuclear. The forecast wind energy costs for developed markets, and this is a rather dated forecast but it was the one we had in our report, and for consistency we'll keep it: for 2004 we're looking at six cents; and for 2020, 3.69 cents. You might say, "Oh, hooray, we're going to be really, really lucky. By 2020 we will get all of our energy from wind and it will be cheaper than it is today." The reality is that over time, all electricity costs have gone down. That's reality. However, here we have a situation where wind costs are going to go down faster than the other costs, and some electricity prices may go up as a result of the need for society to address environmental issues and reduce emissions by putting in charges for emissions.

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But let's look at something that's fairly reasonable. Let's look at six cents in 2004 and five cents, roughly, in 2010. We are going to propose to you today an RPS that brings us to 2010. What we're saying is that this industry doesn't need a subsidy; it needs a market design and a market-based process that's going to provide some incentive. But it shouldn't be long-term; it should be a bridge incentive, not something that's going to prop this industry up at the expense of the ratepayer and the taxpayer or anybody else, or our industry.

What we're proposing here is a short-term bridge—eight years now—to 2010, at which time we should be competitive and able to stand on our own feet, not because of any other reason except technological advances, reduced costs, building up a critical mass, North American manufacturing, lower capital costs for projects, better siting etc.

What are the benefits of wind? A good mix of wind in the grid stabilizes power prices. That is a very commonly misunderstood thing. When you add more energy or electricity from different sources, it actually stabilizes the price because you're not held ransom to the price of gas. If, for example, all of our new capacity came from natural gas in the next 10 years and the price of natural gas went up, if 30% of our electricity is coming from gas, it's going to have a big impact. The fact that we have water power in Ontario at 25% or 26% is a great stabilizer on Ontario's electricity prices. The fact that we've got a pretty good mix of energy sources is a stabilizer. Adding one more isn't going to make it worse; it's going to make it better.

The capital cost of wind is high, but there are no fuel costs. I think that's a really important thing. It's nice to know that in water power and wind power we don't have to pay money out to Premier Klein out in Alberta for his heritage fund or to Saskatchewan or to these other places. We don't have a fuel cost. Now, the government may choose to tax, as they do with water power and royalties, but it's a made-in-Ontario thing. We're not leaking our tax dollars to the feds or royalties to other provinces. This is an important point for Ontarians.

It's a known resource and it's close to loads. Again, at one time I think what most people thought about wind was, "Well, it's up in the Hudson Bay and James Bay

areas. It's windy up there, but there's nothing down here." Not true. In fact, we never even considered Hudson Bay and James Bay as commercially viable options. There may be some local opportunities for First Nations and service to the communities, and in the long term there might be some strategies. What we looked at was commercial. "Commercial" means there are roads, there are people to fix them, there are transmission systems nearby, there is a wind resource that's good and there are areas where the competition for land isn't excessive and where we can get community support. That's what we meant by a wind resource close to loads.

It's modular—quick construction. In other words, what's the difference between building 20 towers and 50 towers? Well, you just keep going. If you have the wind resource and the land base, you can assemble these units at pretty well one a day. In fact, there are now self-erecting towers. If anybody wants to see it, I'll show you a little movie of that later: a self-erecting tower that not only puts itself up but also puts the turbine on top, with the blades, ready to go, in one day—eight hours. I've got a little movie on my computer. On our way to Kakabeka Falls, I'll show you.

A company called me the other day that is a partner with the BrasCan Great Lakes Power group. They're interested in looking at opportunities for manufacturing in Canada. Again, and this speaks to some of the items in our report, we need to build a critical mass. It isn't just generation and development of wind parks that we need; we need manufacturing, servicing. Our steel industry needs this. We could be the centre in North America for this. I'll talk about that a little later.

So the benefit of wind is that it supports Ontario's industrial heartland, steel-making, fabrication, electrical generators, transformer control equipment—things that Ontarians are good at. We did it for the water power industry. We're world leaders in water power. It's just too bad we didn't have more big water power projects to develop. We've largely exploited a lot of our commercially viable water power facilities. But we're good at this. Ontario is a great manufacturing area. The price of our dollar is good. Why should we be bringing towers and turbines in from Europe or the United States? Why shouldn't we be building them here?

Ontario's wind resource: why is wind speed so important? You're going to hear people say, "We should just build these things everywhere." The fact is, wind is like gold; it's hard to find. There's lots of mineralization around in Ontario, but there's very little ore in terms of mining. There's lots of wind around in Ontario, but there are very few areas where wind speed averages more than seven metres per second, long-term average. That's what you have to have; we think, commercially, more than that, probably 7.5.

Why is that so important? Wind has a special feature: it's the only energy source in the world, bar none, for which if you double the speed, you get eight times the power. If we doubled the amount of water power falling over a waterfall or going through a turbine, we'd only get



double the power. If we doubled the amount of uranium that we stuck into a reactor, we'd only get double the power, theoretically. The same thing with gas, all of them. Wind is different. If we go from seven metres per second to eight metres per second, we don't get a proportional relationship, we get a cubed value relationship. This is absolutely critical because it makes a big difference in the cost per unit of energy.

Let's take two examples. Location number 1: average wind speed of 6.7 metres per second annually will produce, per square kilometre of land, 11.65 billion watt-hours. Area B: just slightly more than one metre per second more, at 7.8; the actual increase in wind speed is only 16%, but the annual energy goes up to 18 billion watt-hours, a 55% increase in energy yield with only a 16% increase in wind speed. Which one would you rather develop, if you were a developer? Which one would you take to the bank and say, "Here's my cost"?

We have areas in Ontario that have lots of 7.8. We have areas in Ontario that have some 8.0—the cream, the gold, the ore. The Niagara wind streams that we want to find are here. The reason why they're "Niagara" wind streams, and why I use that comparison, is because that's truly what it is. There are Niagara wind streams up there. The reason we want those is because they, in many cases, will produce 100% more electricity than other sites, so their costs are going to be half. These are very important.

We believe that, from a commercial standpoint, wind speeds higher than seven metres per second, 25 kilometres per hour, are considered to have commercial value in North America. Which ones are going to get developed first? Not the seven. You're going to get the 7.5s, the 8.0s, the 8.1s, the 8.2s.

Classification system: there is an internationally developed classification system. I'm suggesting that everything up to seven in our climate today is not commercially viable. From seven to eight is commercially viable with tax and market incentives. I'd suggest to you that, since this graph came out, the 8.8 should probably be moved down to the bottom where it's just competitive with all other sources, period. It doesn't need any subsidies. I just wish we had more areas in Ontario that had that kind of wind speed.

Talking about resourcing, what have we got for resourcing? We've got the United States, which has done a lot of work on wind resourcing. In fact, on national and state programs, they have spent many, many tens of millions of dollars on understanding their resource; we haven't. We can catch up, though, as I indicated before during the break when we were looking at some of the modelling that has been done for Canada. By the way, British Columbia has done a MesoMap of their entire province.

This map indicates some pretty interesting features in the US. I told you before about Minnesota, where they put \$400 million worth of wind turbines in—real interesting. It's located right there. What's the wind speed there? It's a class 4, 7.0 to 7.5. I'd suggest to you that right where that is, it's more like 7.5 to 8.0.

What about Canada? It's pretty dark up here. I don't know if that's because the sun doesn't go that far, but I think it might be safe to say that, seeing how Ontario is on the other side of the Great Lakes, and we see that we've got some class 5 on the Great Lakes, clearly, I don't think the wind stops blowing at the border; it goes across. As I said before, we're on the right side of the lake, so we should certainly expect to see some class 4, lots of class 5 and some class 6 on the Canadian side. We know that as a fact, and we've shown you a little bit of what we've done in resourcing.

So what have we got? We've got 2,000 kilometres of coastline on the windy side of the Great Lakes and we have strong prevailing southwest winds. Our highland areas of the province also have good wind values. Our highlands are more extensive than what you think, particularly around the Sault Ste Marie and Lake Superior areas. Georgian Bay has some highland areas. There are some highland areas over by Ottawa, although those values are poor because they don't have the lake effect of high wind speeds.

Our studies indicate that there are about 1,500 square kilometres of commercial grade wind land in Ontario. What does "1,500 square kilometres" mean? At 0.2 kilometres per megawatt, that means there might be 7,500 megawatts of potential. The offshore resource is much larger. Commercial wind lands have seven-plus metres per second wind speeds. They should be close to transmission, roads and service.

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Coming back to this number here, 7,500, I should tell you that, like water power, not every wind site is going to get developed. There are some nice water power sites in Ontario that have higher and better use—canoeing, kayaking, tourism viewing, whatever it happens to be. Those projects probably shouldn't be developed for water power because there's a higher and better use. If you've got a nice community on a ridge line where people from Toronto have built \$300,000 cottages and you tell them that you're going to put up 50 wind towers on that ridge, you're changing an aspect of their lives that they've gotten used to, and I'm not suggesting that's going to happen. Unwise developers will pursue those developments. Where there's tight competition for land, they're going to run into problems. So this 7,500 megawatt figure in reality is probably closer to 1,500 or 2,000 for commercial lands that can be developed with good, strong community support.

So we're down to the Ontario Wind Power Task Force Initiative. Why do we have a task force? I'll relate a little bit of our experience as investors in Ontario. My partner, Great Lakes Power—I'm one of its partners on a water power facility as well as this wind initiative—has committed over \$250 million to new electricity generation projects in Ontario in 12 years. That's not a bad number. If it was General Motors, or Ford or whatever, announcing a \$50-million project, you'd have all kinds of people out there saying, "This is great." Quietly and behind the scenes, Great Lakes Power has put \$250 mil-

lion of investment into Ontario in new electricity generation projects. Most of the focus has been on water power; I would say close to \$170 million of that.

In 2000 we reviewed the \$400-million wind park development in Buffalo Ridge, Minnesota. Why did we do that? We're in the electricity generation business, we're in the renewable business. We see what's happening worldwide. We had to get caught up on what was going on with wind power; otherwise we're not doing the job we should for our shareholders. When we looked at it, it confirmed our view that, as a company, our corporate strategy had to include taking a lead role in promoting wind in our home province, Ontario, where the bulk of our investments are.

So in October we embarked on a wind resource program. You saw a little bit of that information earlier. We committed \$1.2 million to this effort just to see what was out there. One of the things we found, and it was a big concern to us, was that there was no regulatory regime for wind power in Ontario. It wasn't a surprise, but we wanted to confirm that there wasn't something or more information that we could find. We met with senior MNR and MEST staff to discuss task force prospects. One of the reasons why we did that is that we had such success working with the government on the water power task force that we wanted to build on that process.

In January, the bulk of the industry participants and the government ministries that we thought would be interested indicated a strong interest in exploring the potential for development of wind power as a significant renewable energy resource in Ontario. I have to tell you, this started before the select committee on alternative fuels because there was a strong interest on the government's part and a willingness to commit resources to it.

In April we had a kickoff meeting of the Ontario Wind Power Task Force in Toronto. Who were the participants? If we didn't have anybody there and it was just a bunch of guys in a backroom, then the credibility of this report would suffer. That's certainly not the case. Who was there? Ontario Power Generation; Great Lakes Power; my company, Seine River Power; Regional Power, a major investor in water power in Ontario; British Energy Canada, which had just recently signed the leases on the Bruce project and was working with OPG on the Huron wind project and certainly has an interest in positioning themselves for the Ontario market; Vision Quest Wind Electric—I think the committee has some familiarity with that company out in Alberta and now currently working in Ontario trying to develop some good wind power projects; Sky Generation; Probyn and Co; and Suncor. Those were the developers, marketers, financiers.

The manufacturers included the world's largest manufacturer, Vestas Wind; Blenkhorn and Sawle, a manufacturer in St Catharines; Steelcraft, a potential tower maker; and Wenver-Vergnet, a company that makes small turbines. In service and skills we had Zephyr North—we don't have a lot of depth in Ontario on

meteorological work for wind energy, and a fellow by the name of Jim Salmon, who is also the past president of CanWEA and I think a presenter to this committee, was just a tremendous asset to the task force—Acres International; and Brock University. The industry associations included CanWEA and IPPSO. So we had a good, broad cross-section of manufacturing, development, service, education and HRD.

Ministries: it's certainly important for us, obviously, to have MEST and MNR involved, MNR being the lead agency for crown land in the province, and MEST being very busy with Bill 35 and responsible for energy in the province. But we also included the Ministry of the Environment, the Ministry of Finance, which we had worked very closely with in the Waterpower Task Force, Economic Development and Trade with reference to the manufacturing opportunities, Northern Development and Mines because our company's backyard is Sault Ste Marie. Northern Development and Mines is keenly interested in seeing development in northern, northwestern and northeastern Ontario. Later in the task force process, OMAFRA was brought in because, as we discovered what the resources were and what the opportunities were, it became very clear to us that there was a large area in southwestern Ontario and some areas east of Toronto that were largely rural and agricultural areas that had good wind power potential—not great but good wind power potential. When we approached OMAFRA, they were absolutely fantastic in bringing in resources, assisting us and paying attention to our message. We have now established a very good relationship with them, and they made a great contribution to the task force effort.

The priority objectives of the task force were:

To identify investment climate required to attract private investment to the wind industry;

Quantify jobs and investment benefits in generation, manufacturing and services;

Provide the government with an industry perspective on renewable energy strategy for Ontario. Remember, this is an industry-led process. It was the industry that was making the recommendations and the government providing resources;

Quantify the emission reduction benefits from large-scale wind energy development;

Propose regulatory policies for wind power and determine the need and role for a lead agency for wind;

Clarify the magnitude of Ontario's wind resource, examine opportunities for industry/government co-operation to help Ontario catch up to the US and Europe on wind energy initiatives;

Provide the Ontario government with constructive recommendations that, if adopted, might help make Ontario a leader in wind energy. I'm not talking a leader in wind energy in Canada; I'm talking North America and I'm talking the world.

The merits of wind power were explored in a positive and constructive fashion, not at the expense of other fuels and sources of supply. That was one of the terms of reference. We weren't here to say all those other things



are bad and wind is great, so this is where we should go. We clearly recognized that there was a role for the assets that were already here that were paid for by the ratepayer and the need for wind to work with other supplies in the electricity mix to meet Ontario's energy, economic and environmental needs.

We had three subcommittees. One dealt with markets, taxation, incentives and regulation; another one dealt with wind resource assessment and land use policies; and a third one dealt with manufacturing and HRD issues. We completed our work, started in April. Our target was September 30. We had our last meeting on the 29th, and we produced our final report in October. So why didn't we bring it to the committee then and say, "Here's our wonderful report"? The reason was we started this task force before this committee was struck. We promised our government participants and our industry participants that we would consult up to the ministerial level at the seven ministries that were involved, and within the industries we also had chief executives who had to be aware of what was going on and what the recommendations were. We wanted to make sure that we had broad consensus and support for the items that the industry were recommending, and we did. We didn't have consensus exactly on every item, but they passed the eyeball test for everybody and that's the important thing.

I should mention to you we met with six of the seven deputy ministers within the ministries and four ministers, and we have several other meetings scheduled to complete that process. Everybody's agenda has been pretty busy of late. We also intend to bring the report to the two opposition leaders and we've made a request for meetings. We expect a positive answer on that. So if anything flows out of this select committee to the Legislature, we've built a level of understanding and knowledge about what the recommendations are, what the alternatives were and what was considered, so that if the government does end up bringing legislation forward, we think there will be broad consensus for what's proposed. That was the idea behind that process. It certainly worked for the water power association, bringing over \$100 million in new investment to Ontario. We think it will do more here.

Challenges, very briefly: credibility and recognition. The worst thing is that when you tell somebody you're in the wind power business, they roll their eyes at you, like, "Oh my God, where did you come from? You're in the wind power business." I used to do the same darned thing. I used to laugh at these guys at these conferences who said, "We're in the wind power business." I'd say, "What's the price of power?" "Twenty-five cents a kilowatt hour." I'd say, "See you next year." Next year it was 20 cents a kilowatt hour. "See you next year." When it got down to 10 cents a kilowatt hour, I figured we'd better pay attention; no more eye-rolling at wind. But I've been convinced, as many of you have as well, that generally a lot of legislators and public people and municipal politicians are going to roll their eyes: "Is this stuff for real?" So that was a challenge for us.

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Education, as you can see in this report, was a big part of our package. Government commitment? If people don't understand the technology, it's hard to get a commitment. That's only reasonable. So we had to do a job of educating. We've really tried to carry that forward in our effort, in terms of presenting it to various staff people in government and politicians.

Market opening: that's a challenge. People are distracted. The market is opening, so all the municipal utilities and MEST people and even environmental people, everybody is concerned about the implementation of market opening. It's hard to get their attention when that's happening, so that was a challenge for us, and we recognized that. In fact, in our presentation today I've changed the timelines on a couple of things because a lot of time has elapsed between October and today. Some of the recommendations we made in October said we should do this by such-and-such a date, and realistically it's not going to happen. So we've changed the timelines on a few of the recommendations.

The other challenge is the impact on environmental communities. You can't go into the province and say, "Gee, we're going to occupy 200 square kilometres of land in Ontario with wind parks." People are going to have a concern about this: aviation concerns, aesthetic concerns, noise concerns. There's an education process that has to happen and there are some trade-offs that have to happen with communities and other interests. So that's a challenge we have to deal with. Of course, you can't deal with them all in a six- or seven-month task force.

There are some schedule limitations. What are we going to deal with? Are we going to deal with Hudson Bay winds? No, because we don't have time to do that. Are we going to deal with small backyard rural 50-kilowatt units that are supposed to help run a dairy farm? Uh-uh, sorry, we don't have time for that. We were interested in large-scale wind park developments that will make a big difference on the environment, a big difference on the economy, a big difference in terms of public policy. That's what we were interested in.

This is just a nice picture so I could rest for a second. This is a picture from out west, actually, and a photo that was courtesy of Vision Quest Windelectric. We thought we'd put it in, but we would like to change the background so that it looks like the inland areas of Lake Superior or southwestern Ontario. We've got to get rid of these mountains and put an Ontario scene there.

Key recommendations: we're going to pound through these pretty fast, because you can read them at your leisure. There were three key recommendations that came out, 15 in total.

The renewable portfolio standard and the production tax credit are kind of lumped in together. As you know, the production tax credit is a dated recommendation, and I'll deal with that in some detail. But that was a key area. Why was it key? All of the other recommendations don't mean a darned thing—they're stranded—if we don't have a business case for investment in Ontario. So we can

have all nice tax incentives and holidays on royalties and all those other things, but we still have to go to the bank with a revenue stream.

Crown land use policies for wind and wind resourcing was another area of priority recommendations, because there are some very good wind assets, much like there are with water power, on crown lands, seeing that the crown owns 87% of the land in Ontario. It only makes sense that we develop a policy around that.

The third area of priority recommendation is, how do government and industry co-operate to build a critical mass for the wind business, and as I said before, not just for generation, but manufacturing and servicing? How do we work together, as we did for the Ontario Waterpower Association, as this government has done for other industries in fine fashion?

So recommendation 1(a), real quick: we want an 8% RPS and we want it by 2010. It should graduate over time so that there's time for capacity to come on-line and it doesn't create a scarcity and a run-up in the price of renewable energy credits. But 8% is a target by 2010. We'll show you later on in our RPS how we get that number, because it has to be realistic. It's a nice thing to trot it out, but can we deliver without causing a run-up in price?

Proposed timeline for action: we would like to see the government indicate a policy direction prior to market opening. In other words, government could say, "We think RPS is one of the tools that we would like to explore in greater detail." Subject to that detail being positive, we'd like to see some legislation and regulation for January 2003. We think that's doable. I just made a note here that we discuss that in greater detail later on.

Recommendation 1(b): what do we do in the interim? Should we just park this whole initiative and say, "OK, we'll just wait until we can deal with the RPS before we do anything for the wind industry"? In fact, the government could do something right now, much like many of the other provinces. Alberta, Saskatchewan and PEI together with the feds have adopted a procurement policy for purchases for government buildings and institutions. So until an RPS can be fully implemented, the Ontario government should adopt a renewable power procurement commitment for its own electricity needs using the same eligible renewable energy resource criteria recommended in the RPS rules. The timeline for action on that could be market opening. That would bridge us from now until the time that an RPS came in, and kick-start some investment in the wind industry, which we need to do right now.

Recommendation 2: this is a dated recommendation, but I think it's important to go through it in the context of what's happening in US jurisdictions. So what is a production tax credit? In the US, it's a federal tax incentive for wind energy that since 1995 has provided a tax credit in Canadian dollars of about 2.3 cents per kilowatt hour, tied to inflation, for every unit of qualifying energy. We were advocating that the federal government here adopt something along those lines.

What does a PTC do? It encourages investment in high capital cost generation like wind power. Unfortunately, the PTC legislation in the US expired in December. A two- to five-year extension is before Congress. We expect it to be passed once they get focused away from September 11 and some of the security concerns. When enacted, projects built in the qualifying period will receive a tax credit of 10 years.

The difficulty with the PTC in the US is that it's sometimes been termed a "fetch" bill. In other words, "Let's not pass the legislation for too long, because we can always use that to get political donations for the next election." In effect, what it's done is that it's been a roller-coaster ride for the US wind industry; it's boom, bust, boom, bust, boom, bust. That's been going on since enactment to renewals of the PTC. It's probably not the best way to go. The other problem with PTC is that it assumes you've got a taxable income. Most small developers and small entrepreneurs that get these industries going don't have a taxable income, because they're broke. They've got to go and borrow money to do this thing. So PTC isn't always the best.

Our recommendation in October said, "Following the acceptance of an Ontario-based RPS, the Ontario government should challenge the federal government to follow Ontario's lead by adopting a production tax credit for sustainable renewable energy production." So I was saying that Ontario should challenge the feds by bringing in an RPS, and the feds can respond by bringing in a PTC. Guess what, folks? They beat us. The federal government enacted earlier than expected, and this was a surprise to the industry; we had been lobbying for it at the federal level. But they have adopted a production incentive for wind in the December 2001 budget. So what's it all about?

"Canada adopts a production incentive for wind. The program will pay wind energy producers"—not water power producers, which I think is an oversight on their part—"a direct cash incentive of 1.2 cents per kilowatt hour for 10 years." Gee, that's not as good as the US one at 2.3 cents, right? Wrong, because it's a cash incentive. It's paid directly; it's not a tax credit. So it goes to everybody. I should point out that the incentive declines over time, so the first ones in presumably, once we see the final rules, will get 1.2 cents, and the ones that come in later on will get less. It makes sense, because our costs are supposed to be coming down, right? The guy or the company that goes in first should get the largest reward.

So it's not as large as the soon-to-come US PTC, but it does have some good features. It's a direct cash payment, not a tax credit, so small developers and companies that are not in a taxable position receive the same incentive as taxable corporations.

We have another benefit federally that all wind power projects qualify for the class 43 accelerated CCA rule, which is 30% depreciation on a declining balance. What does that mean? Most wind power projects would not be taxable typically for a period of seven to 10 years, because you can keep writing off your depreciation early



until it's all gone, so you're not in a taxable situation. So that 1.2 cents comes into your books as revenue, untaxed, basically, or tax-shielded, in the early years of the project, when your debt is highest.

Now, this may not sound all that important; we're here to talk about wind power projects. But if you can't finance the darned things, you don't have any wind power projects. This is a huge benefit to the wind industry in Ontario and to the government of Ontario. Why? Because it effectively reduces the burden that government or the ratepayer or the citizens have to pay to get renewable energy. The federal government has said, "We're going to take this share and we challenge the provinces to come back and do something." So the challenge is here.

1150

How does the production incentive help Ontario? It effectively reduces the cost of RPS credits by about 40%. It's hard for me to nail down because RPS credits are supposed to be market-based, but that's my estimate. It's based on a market price of power at 4.5 cents and a federal production incentive of 1.2. We've got some set-asides and probably some future carbon credits that will have a value of about half a cent, and if we stick a market value on the RPS tradable credits of 1.8 cents, we end up with eight cents. That's supposed to bring on 2,000 megawatts of investment in wind in Ontario.

What does this 1.2 do? As a relationship, 1.2 and 1.8 is three; divide three into 1.2, and you get about 40%. This is a big boost for us. This makes your decisions as a committee a lot easier, now that the feds have taken that out of the equation. It's really something to consider. It has made my job a lot easier because the impact on electricity rates in Ontario has significantly reduced as well. We'll talk about that when we get to RPS.

Crown land policies: we think the government should adopt a crown land disposition policy for wind energy development with the following features: we need crown leases for wind lands with long terms, so that when we go to the bank we've got 10 years' security for the area that we have. Water power is the same way; you can't finance a project on a five-year lease. You have to have long-term leases.

We suggest there should be a royalty holiday of 15 years. Water power gets 10. We're the poor cousins of water power. We think we should have an extra five years.

Land rental charges for wind parks should be at the general use rate applied to crown land in the area. What does that mean? If land as rental is charged as highest and best use, and its highest and best use is wind power, then the provincial policy currently says, "Well, then we should charge a high rate." I'm saying, as part of a renewable energy strategy for Ontario, that we should charge a rate for the land but it should be at the general use rate rather than a highest-and-best-use rate. That's a policy direction that has to come from government.

Proposed timeline for action: I have to tell you the industry is already well advanced in its discussions with

MNR. MNR has been a key to our work in both the water power industry and the wind power industry. We're already in a detailed review. They work very closely with the task force in providing information to us on crown land use policies and what they could do now to help kick-start an industry, and they're even considering interim arrangements so that we can get this industry off the ground. MNR is well advanced on this and we're going to continue to work with them.

Recommendation 4: government and industry co-operation to build a critical mass. "Critical mass" means that we actually have comprehensive business across manufacturing, servicing and generation. In order to have a whole Ontario-based wind industry, we need a business investment for climate and dealing with markets, regulations and incentives—that's on generation—but we also need a domestic supply of competitively priced, high-quality wind equipment and services.

Why should Vestas come over here and build a plant in Ontario if we've got four megawatts of installed capacity? You tell me. If we don't have domestic policies that encourage wind, we're not going to see manufacturers come here and set up in Ontario. The components of this critical mass are examined by subcommittee number three, manufacturing and HRD. The graph below illustrates the engineering jobs' impact of achieving the CanWEA 10X10 vision: 10,000 megawatts by 2010 in Canada. A similar spinoff in jobs and investment would apply to steelmaking, tower fabrication, the manufacture of turbine blades, electrical components, HRD and support activities.

Let's look at this graph just very briefly. Here's a number: new engineering jobs, 2,444 by 2010, based on this run-out. That's just engineering jobs. It doesn't talk about the steel industry, it doesn't talk about turbines, it doesn't talk about blades, of meeting that. What's the economic impact of 2,444 jobs? Read it in your report. It is huge.

We recommend that in order to achieve that building of a critical mass, a fifth centre of excellence be established and funded at an Ontario university or college to spearhead research and education on wind generation; that a government wind industry lead be established and resourced.

What does that mean? "We're going to appoint some guy over at the MNR. He's going to be the lead, and we'll give him \$25 a year to run this business." No, sir. We need a really powerful lead with a strong mandate from his minister to bring together all the various representatives from other ministries—we've listed seven of them here—and to bring together the industry, the educators and all these other groups that are going to make this go.

A wind industry lead has to be resourced. I think the number is a million dollars a year. It's not a big number. We're spending \$4 million a year in the water power industry to do water management planning. To get this off the ground, we don't have to spend a lot of money, but we have to spend some. We have to make an

investment in some department or ministry—I think it's MNR—as the natural agency for wind and renewable energy.

After consultation with the Ontario Wind Power Task Force, OWA, IPPSO, CanWEA and other stakeholders, government should develop a renewable energy strategy for Ontario. That's what we're talking about right here: a renewable energy strategy for Ontario. Paul talked about it; I'm talking about it. We need to have a formal renewable energy strategy. What's the objective? How are we going to get there? What are the tools that we need to get there? What are the resources? We discussed this a little bit more in the RPS. Actually, our whole presentation is really a discussion, a framework, for a renewable energy strategy for Ontario.

Other key recommendations: education and participation. Industry and government need to get more involved in trade shows. Sometimes I go to trade shows and there are no government people there. There should be. These are important trade shows. They're talking about technology. There are government people from other countries there. Our government has to get more involved in that, and so does our industry; we can't be sitting at home either. We have to spend some money.

This active engagement is one of the keys to encouraging Ontario investment. If you've got a guy who wants to invest in Ontario, and he's got a knowledgeable industry that's attending trade shows and listening to what's going on, he says, "This province is up. They're up to speed, they're interested, they're engaged." That's one of the recommendations.

This is just a small thing, but we should also do what Alberta has done and develop a wind information booklet for distribution. There's one in your report. Industry should pay part of it, MEST should pay part of it and MEDT or MNR. It's not a big deal. Everybody kicks in \$10,000 or \$20,000 or something and we'll do it. Let's get it out there. We should do that right away too.

Next, wind resourcing: I've said before that we shouldn't ask the government to spend a whole bunch of money on wind resourcing. You can if you want. You can spend millions of dollars, but you're going to be way behind. We should have five tall tower sites, maybe having a cost of about \$100,000 initially and maybe a maintenance cost of \$25,000 or \$30,000 a year. The data from those tall tower sites would be available to the public. That will encourage new entrants. It will help the IMO make forecasts of electricity coming from wind and also help market participants or competition understand where we're coming from.

Existing GIS data that are in the records that taxpayers have already paid for: if we want it now we have to pay for it, and in some cases it is pretty expensive. We think it should be made available at a nominal cost to this industry. It is in the US, it is in Europe, it is in most jurisdictions in the world, but in Canada, for a priority policy area, we have to detach the philosophy that it's user-pay and full cost recovery. The taxpayers have already paid for this. We want some benefits. Let's get

that information out to this wind industry and let's resource that GIS department so that they can give us answers fast. I want to know what the contours are on a mountain over by Sault Ste Marie. The next day, I get an e-mail from somebody at MNR that says, "That's what they are, and your price is \$25." No problem. That works.

Ontario needs to work with the federal government and give them a good, swift wake-up call that we've got an emerging industry on wind power development. If I build a 200-megawatt wind park and there are 200 towers there and there are 200 strobe lights on it, everybody within 100 miles is going to hate my guts. It will never get passed. Forget it, it's not going to happen. We've got global positioning systems in every little airplane in the world now. We don't need to have the same tower or lighting rules that we had 30 years ago. This thing is outdated. In fact, there are more bloody lights on in our skyline today that we don't need. We should get rid of half of these darn lights. With this emerging industry, with large numbers of high towers, we have to have a common sense approach to lighting. One or two lights on a 100-megawatt wind park—one at the beginning and one at the end—is fine. The navigation community has many tools to work with in terms of dealing with hazards, and there are lots of buildings, trees, hills and everything else. A hundred metres up in the air shouldn't be a problem for these guys if there's a minimum amount of lighting.

We also need to carry on offshore wind resource assessment of the Great Lakes, with particular emphasis on Lake Erie. It's not competitive right now but it could be in the future. We have a tremendous wind resource on Lake Erie. It depends on what the competition for those waters is. We're leasing out options on gas lands underneath the Great Lakes now; we should investigate what our wind resource is, what the foundations are and what the ice conditions are in the wintertime so that we can prepare for the possibility of large-scale development on lands or waters in an environmentally sustainable fashion.

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Recommendation 7, farming the wind: what are the benefits to the farm community and to the rural community? Let's understand that. We're working with OMAFRA now on that and there are a number of very good reports out.

Recommendation 8, environmental assessment: we think that the government should consider raising the screening threshold for wind for an EA from two to 10 megawatts, although—I have to be honest with the committee—I don't personally have a problem with the screening of any project. If the policy direction from the government says that wind development is a priority and the screening is well done, it's up to the developer to build community support for his project; that's his responsibility. So I don't have a problem with this number. Sure, it would be nice if it was higher, but ultimately, if you're going to put a 100-metre tower up in the middle of



a city, you're going to be into some controversy—bylaws, whatever.

Recommendation 9, set-aside for renewables: I think the government has done a pretty good job in responding to the industry's need to have a set-aside for renewables and the number that they've picked isn't too bad. I think it's low. Certainly it should reflect the government's objectives and society's objectives in terms of emission reductions, but the percentage that's available to us, the renewable industry, should graduate with an RPS. So if we ask for a 1% RPS in 2002 and we go to an 8% RPS in 2010, by 2010 the set-aside for renewables should probably be higher than 2% or 3%.

Recommendation 10, property assessment: it pretty near killed the water power industry; an absolutely terrible disaster. This government recognized that and changed the method of assessment, as Paul mentioned, and levelled the playing field with other sources. We've got a brand new industry starting in this province. We don't want to have a situation where wind towers receive some kind of arbitrary assessed value that discourages investment. At the same time, we recognize that municipalities have to have a revenue stream from these, otherwise you're going to strand their interest or alienate their interest in having wind park development in their areas. We're saying, let's do what other jurisdictions are doing: a reasonable assessed value—\$20,000 to \$30,000 per megawatt—and depending on your mill rate in different jurisdictions, it would yield between \$2,000 to \$5,000 per year per tower. That's not a bad number. It's reasonable. It's not much different from what you might get from two or three houses.

This rate is similar to Alberta. We should have some action on that right away because some of us are bringing draft financing projects to our financiers now. They want to know what is the regime for taxation.

Recommendation 11: we should look at the wind and water power integration synergies. We'll talk about that a little bit later. One of the reasons why Paul and I are here today doing this tag-team presentation is there are huge synergies between water power and wind power, and one brings value to the other. We've got to look at policies that are going to incent investment in energy storage, reservoirs and pump storage.

I just mentioned that we will be talking about this in a little article or presentation entitled "Are Hydro and Wind Friends," and of course the answer is yes.

Recommendation 12, distributed generation and DRC exemption: where practical and safe—and there are some challenges here—distributed generation or net metering generation should be allowed, certainly, and encouraged. Perhaps small generators, self-generators—an industry in southwestern Ontario, a tomato factory or whatever—if they want to put up on their farm a wind tower and sell their power to themselves or consume their power themselves, perhaps there should be some consideration, because of the environmental benefits of doing that, to exempt them from the DRC. We've suggested a figure of less than five megawatts. The reason is that everybody

has to pay for an electricity system that's here now, and the debt, and we can't have everybody jumping off the bandwagon. But I think it's reasonable to have small self-generators that are producing renewable energy exempt for their production if it's under five megas.

Recommendation 13, capital taxes and provincial sales taxes: this government is certainly moving away from capital taxes, to their credit. This renewable industry, whether it's water power or wind power, is just killed by capital taxes, because we put all our capital up in year one. Our operating costs are low. All our capital goes in in year one and we pay a capital tax every year. The government has already indicated they're moving away from capital taxes. We think that, as part of a renewable energy strategy, they could take a special course of action and exempt wind power projects from capital taxes. It should probably be applied to new water power projects as well.

And we should be exempt from PST. We do it for logging equipment. We do it for a hundred different things. We've got all these exemptions from PST. You can go through the list; they're all there. We've got a new industry here. At least for the period to 2010, we should, as part of a renewable energy strategy, exempt all of the purchases and all the operating phase charges that would normally have PST applied to them.

Recommendation 14, building community support: this is kind of important. I think we need to work with the industry and government needs to work with municipal councils on education. We have to objectively address issues surrounding wind energy, like noise, aesthetics, bird kills. These are items that are not well understood. We have to make sure that the property tax rates aren't so small that, as I said before, we alienate the municipalities. What's in it for us? Nothing. Why do we even want to talk to you? The wind industry should be a win-win, a win for the environment and a win for the local community in terms of tax revenues.

We are not asking the government to bring in standard bylaws for special setbacks and zoning rules. The reason for that is, we think the industry, the developers, should be talented enough to go and build a trust relationship with each community and address each community's concerns. It's not the role of government to go and say, "We're going to put wind power in. It doesn't matter what you guys like." We're developers. I grew up in the water power industry and I'll tell you, it's tough to get a community behind a project, but it can be done. It can be done by listening to what the needs are and addressing them. Those developers who don't address them always get into trouble and their projects don't proceed, as they should not proceed.

Recommendation 15, transmission issues: a big issue and your committee is not going to have time to look at this, but we need to look at the system layout, capacity and the connection issues to determine what the opportunities are for wind power. Although I am only calling this a key recommendation, not a priority recommendation, really, this is a big issue. As part of a renew-

able energy strategy, the government needs to consider the role of policy direction on the improvement of the grid to areas of the province where potential new renewable generation is stranded due to the lack of transmission capacity.

What does that mean? Well, I'll tell you what it means. We've got up in the Mattagami area about 400 megawatts of new capacity that could be developed that won't go ahead because we don't have enough transmission lines. In northwestern Ontario, where we're sitting here today, we couldn't put another 100 megawatts on this system because we don't have the connection to southern Ontario or to Manitoba or to Minnesota. Manitoba doesn't want our power; they've got lots. Minnesota, we don't have a big enough connection. So that area I showed you before where there was a potential for development, forget it. Nobody's going to look at it.

Is there a role for government to give policy direction to the Ontario Energy Board, saying, "You guys need to consider in your transmission rate structure incentives for bringing more grid capacity to certain areas?" I guess I would say, "Yeah, that's right," because you can't expect the generator to build a 500-kilovolt line from Mattagami down to Toronto. He's not going to be able to make a business case. That's why some of these things have not gone forward. So there is a role here for renewable energy strategy development to look at this issue. Transmission, connection, capacity constraints are very important, particularly for northern Ontario.

What do we get out of all these wonderful things? After you go to the Legislature and adopt all of our recommendations and flog them in, what are the deliverables? Immediately, you're going to get about \$10 million to \$40 million in resource identification and predevelopment investment, just to find out what's out there, to go and get options, to do all of the surveys and work with communities and environmental assessments. But more importantly, over time, it will provide in Ontario a secured climate for investment in up to 3,000 megawatts of wind energy, which is 30% of CanWEA's 10,000 megawatts by 2010, and it represents an investment of \$4.5 billion. So should Ontario go after 30% of CanWEA's 10X10? Sure, why not? We're 30% of the population in Canada, the richest province in Canada and the province with a big issue on emissions, not only caused by Ontario but by other areas. We have to take the lead in North America, I think.

In eight years, deliver 3,000 megawatts of low-impact renewable energy to help Ontario meet its energy needs and emission reduction targets, and that clearly includes water power, and provide a long-term revenue stream to the crown and communities from the sustainable use of Ontario's indigenous, renewable energy resources and promote local and regional job growth.

Summary: wind power is making an important and growing contribution to the energy supply and environmental and economic goals of such countries as Denmark, Germany, Spain and the US. Wind power has

the potential to do the same in Ontario with the right combination of industry and government incentives.

Ontario's got a good wind resource, a strong industrial base and a skilled workforce. We need to expand that skilled workforce a bit. Our electrical needs are growing and new export markets are opening. "Oh, gee, we don't want to export our renewable energy." Well, why not? What if we did have a really big expansion of renewable energy in Ontario and we sold power to Michigan, Wisconsin and New York, areas where a lot of the generation is coming from fossil fuels? Who is that going to help? Go figure. Ontario, big time. So we shouldn't be just looking at what can happen in Ontario; we should be looking at the opportunities for improving the air quality in this part of North America.

I'm sorry. Go back one, Lois.

Clearly, there's a need to address air quality issues related to electricity generation.

In summary, in the design of the Wind Power Task Force recommendations, industry recognized that wind is not a magic bullet; it must work with other generation sources. New policies for wind must not strand existing generation assets. I'm a firm believer in that, and there's no need to. You'll see a little bit later when we get into the RPS percentages why.

It should have a neutral or marginal impact on electricity prices. We don't advocate that Ontario turn around and say, "OK. We're going to be the champs. We'll be the leaders in North America, and our industry's going to pay two cents a kilowatt more for power than anywhere else." Forget it. That's a non-flyer. We think it should be neutral or marginal. By "marginal," I mean less than a 2% impact on electricity rates.

It must have a significant and measurable impact on Ontario's clean air objectives. What's the point of this whole game if we propose an 8% RPS and it doesn't do anything to the air quality of this province? We're going to show you in the RPS discussion exactly what it does.

It must increase the energy security and build jobs and investment in Ontario.

Industry also recognizes that there is an ongoing need to work with government to provide advice on policy implementation. We've shown what we would do in the water power business, and I think that has worked well.

In addition to that, we also have to work with government to address the needs of other stakeholders.

We hope the select committee will consider the Wind Power Task Force report as a key source for developing your final recommendations. We're at your disposal. If you need additional information or if you'd like to meet with us again prior to the development of your recommendations, we're certainly at your disposal.

We're going to be doing, as I said before, a presentation on renewables portfolio standards and wind-water power synergies.

Lastly, the committee does have a number of extra copies of the report in Toronto, also a CD, so you can reproduce the entire report. If anybody wants, we're going to be posting the text portion of the report on these



sites and I think also on my partner's site at Great Lakes Power. The entire report is available on CD for a price of—what? What should it be? We haven't determined it.

Anyway, that is the Wind Power Task Force report. Thank you for your patience in listening to this windy part of your session today.

**The Chair:** Thank you very much for a very, very extensive report on wind energy.

Just before we discuss with the committee where we go from here, there are seven minutes left in the two hours. Research has requested a copy of your presentation, the condensed form of the report that you were presenting to us.

I'm looking to the committee for direction. You want some time for an RPS presentation. There are also questions and statements I'm sure some of the committee members want to make, but we have seven minutes left in the two hours. I'm at your pleasure.

**Mr Gilchrist:** I'm sure I speak for our side. We're more than happy to extend the time. This is, after all, presumably the most comprehensive analysis we've seen for the entire wind industry and water industry. So in that regard, plus the fact that we're not exactly under any time constraints for the next group, there not being one, at your discretion you extend it as long as—

**The Chair:** May I make a suggestion? I would suggest that we take a 15-minute break—I see sandwiches at the back—we return to the table, have 10 minutes for each caucus on questions and statements on what's been presented, and we then go into a half-hour for RPS, unless that gets us in trouble with the tour. Would that be in order?

**Mr Boileau:** Mr Chairman, it doesn't get us into trouble with the tour. We just have to advise them that we're a little bit delayed.

**The Chair:** It's now almost 12:15. How about we recess until 12:30? We'll reconvene for 10 minutes for each caucus to ask questions and statements on what's been presented. That will take us to about 10 to 1. We then go into a half-hour for the second presentation and recess at 1:20. Is that in order? Hearing no objections, the committee now stands recessed until 12:30.

*The committee recessed from 1214 to 1234.*

**The Chair:** The recess has been slightly longer than originally planned, but all the committee is back who are here in Thunder Bay and we'll reconvene at this point. We'll turn to questions from the government side. Who would like to start? Mr Ouellette.

**Mr Ouellette:** The figures that we show for water generation indicate—when you talk to people from Hydro or from MNR, what sorts of flow rates and drop rates do you require in order to generate hydro now?

**Mr Boileau:** I'm a developer, so I'll tell you, Jerry: the straight answer is that energy from falling water is directly proportional to the head times the flow times the accelerational gravity times efficiency. So if you have low head and/or low flow, you're going to have big dollars in capital to put the structures in to channel the water.

**Mr Ouellette:** Ontario Hydro specifically said they needed 15 feet of drop, but I don't remember specifically what the volume of water is to go with that.

**Mr Boileau:** It all comes down to the economics. If you have low head, you have to have a very large machine to capture the volume of water, so low head typically means you've got very high volumes.

For example, the facility on the St Marys River at Sault Ste Marie I believe has an 18- to 20-foot drop, but it's flowing all the water of Lake Superior. That particular project, if you can see the size of the penstocks and the volume of water and the huge concrete structures required to capture it, the only thing that makes that one go with the low head of 18 feet is the very high volumes. For example, if you had a river that was an average river—I'm trying to think of an example. Even in the Trent system, if you had a head of 10 feet, it would be very difficult to make a business case for investment. You might be able to do it on a 15- or 20-foot one if the existing structures are already there, there's a dam and all you're doing is adding a powerhouse to the site. Low-head projects work in an environment where we have 15-cent electricity. They don't work in an environment where we have six-cent or seven-cent electricity.

**Mr Ouellette:** The technology hasn't increased the—

**Mr Boileau:** You can't get any more power out of the water. It's a straight formula, head times flow times 9.81 times 0.9. If you cut the head in half, then you're going to get half the power; if you cut the flow in half, you're going to get half the power—just a simple formula.

**Mr Norris:** When MNR analyzed, for example, their information with respect to water power potential in the province in their existing database, I believe they used a figure of three metres and under as having low potential—they didn't even use flow—three to 10 metres as having moderate potential, and over 10 metres as having significant potential in the context of resource management planning.

There are a number of technologies or there is some work that's been going on with respect to retrofitting existing capital infrastructure that may have some potential to alleviate some of that problem, but that goes back to David's point about the initial capital investment as part of the problem related to head and flow. Where you may see innovations applied is where MNR has 325 dams. If you can make some of those produce water power without a huge new investment in capital infrastructure, there may be some possibilities.

**Mr Ouellette:** Out of those 325, do you have any figures that indicate which ones would have potential and which—

**Mr Norris:** I know they have looked in the past and continue to look at their infrastructure management strategy generally and dam management specifically, because obviously it's costing MNR money to maintain those structures. Every intention I've seen is to have a formal regulation introduced for dam safety in Ontario like Quebec has done or like BC has done, but they have looked at divestment opportunities. Cordova is the one I

mentioned before, where they divested that infrastructure, and the Deer Lake fish hatchery now produces water power and it can still provide water to the fish hatchery. So they could and so could municipalities.

**Mr Boileau:** Just to expand on that, Jerry, the cost of doing an environmental assessment and the engineering for a small project in a lot of cases is exactly the same as for a large project. Those that are marginal, because of those other overhead costs, engineering, project management and environmental assessment, are a tough go. The really big ones that are going to hit Ontario are going to be the variety of the Beck tunnel developments, the Mattagami complex and the redevelopment of existing facilities.

**Mr Ouellette:** We have 325 dams not being utilized currently, if there's some way we can utilize them rather than developing new structures. When you put a new structure in like Bark Lake, it certainly has a lot of impact on what takes place in that whole ecosystem.

**Mr Boileau:** Every one of those structures was available during the late 1980s and 1990s. Of the several hundred applications that came to the crown for water power development on existing facilities and on new facilities, I think only about 15 or 20 actually moved ahead to development, at a price of six to six and a half cents per kilowatt hour. Those are the better ones. Now, if we're going to default to the ones that were not as attractive, we clearly would have to have a price in the 7.5% to 8% range in order to attract that. We don't have that in the market. That's one of the reasons we're saying that water power requires an equitable treatment within RPS and within other incentives, just like wind power, in order to get it off the ground.

1240

**Mr Ouellette:** There haven't been advances in technology as there have been in wind?

**Mr Boileau:** Since 1899, the efficiency of water turbines has only improved by about 5%—1899, 100 years. What we have improved is the control technology for head that changes and flows that change; in other words, being able to stay on top of the efficiency curve. Water power largely was perfected in the 1800s.

**Mr Gilchrist:** Given the success of the water power and the wind power task force, would you recommend to this committee that the steps be taken to create a solar power task force and perhaps even a biofuels task force?

**Mr Boileau:** I think that would all fall under a renewable energy strategy. Certainly we have the OWA and a new business relationship with government. Clearly there's an opportunity for IPPSO, through a branch called the wind power group or whatever, to have a new business relationship with the government. Who are they going to have a business relationship with, with a renewal energy group? It should be looking at all the changing technologies. I related to you my story about how I was a skeptic about wind. So I would look very interestingly at anybody who would say that solar power doesn't have a future, because technological changes in our society are making old, non-viable projects viable.

The cost decreases in solar are quite substantial, but it's still probably five or 10 years out.

But certainly we don't want to get caught, like we have with wind power, not knowing what's going on in terms of technology development, and that is why we recommended a lead agency for wind. But there's no reason why that couldn't be a lead agency for renewables. Clearly we're already partway there with MNR. They've already been working with the industry and with other stakeholders on a renewable strategy.

**Mr Gilchrist:** You mention the GIS information. Is it your understanding that we have comprehensive wind mapping of the province of Ontario today?

**Mr Boileau:** No, you have comprehensive GIS data on parks, contours, forests, infrastructure. In fact, we've bought a lot of the information and we've been working with MNR on data swaps, considering swapping wind resourcing for their information. MNR has been very co-operative and I think is looking at its policies and looking for policy direction as well from the government on renewable energy strategy. Some of that information was incorporated in this wind map process that we've talked about, and it has come from the Ontario data source, which is quite extensive. Ontario has done a good job on gathering GIS data, but not for wind.

**Mr Gilchrist:** But not for wind.

**Interjection:** Or for water.

**Mr Gilchrist:** The last question I had related to an issue that's taking place down in Prince Edward—well, it's not "county" any more; the municipality of Prince Edward—the siting, as you know, of a reasonably sized windmill farm. In your presentation you suggested a common approach to approvals and the environmental assessment treatment of wind farms. What role do you see the municipalities playing in terms of the specific application, the traditional site plan approval that has always been a power municipalities have enjoyed?

**Mr Boileau:** I'm a real advocate of building local trust and respect between a developer and a community. I know that particular project you have in mind and I'm quite confident that developer will be able to bring forward a win-win type of development. That doesn't mean there aren't going to be trade-offs. If you've got a house and you look out over a field and you haven't seen a communication tower, you're probably going to have some concerns about seeing a communication tower. I think the company pursuing that development certainly has a fine example of the projects they have out in Alberta. We advocate bringing councillors and mayors from different communities, and stakeholders who might have an objection to a project, to projects that are already operating. There are a number in New York; there are the ones that we mentioned in Minnesota.

**Mr Gilchrist:** What a scandalous thought: actually going and travelling to see things in person. Outrageous.

**Mr Boileau:** It's a must. This committee knows the value of that, because I think you guys and ladies have seen some tremendously interesting technologies and opportunities develop out of your travels, so I encourage



that. But I don't think that we want to have the province forcing municipalities to adopt a standard set of bylaws. We're developers. We're supposed to know how to deal with people. Communities have different interests. One of the things we can do, though, is we can educate. We can work and educate people, give them information and facts.

**Mr Gilchrist:** I guess I should say, because Hansard doesn't pick up inflections, my tongue was firmly lodged in my cheek in that last interjection. Thank you for your answer.

**The Chair:** We've come to the 10-minute point. Dr Bountrogianni.

**Mrs Bountrogianni:** First of all, thank you for an excellent presentation and excellent documentation. It was wonderful, extremely effective communication. You instill confidence in whomever is listening to you both.

You mentioned centres of excellence. Maybe I missed it; maybe it's in the report. Where are the other four centres of excellence? That's the first part of the question. The second part is for Paul. Would you support a centre of excellence for water as well?

**Mr Boileau:** To be honest, I can't say where the other centres of excellence are, because I delegated that to my subcommittee chairman Claude Mindorff on that committee. I can get that answer—

**Mrs Bountrogianni:** But are they in Ontario?

**Mr Boileau:** They're in Ontario, yes.

**Mrs Bountrogianni:** They are in Ontario. OK.

**Mr Boileau:** I can get that answer for you.

**Mrs Bountrogianni:** That's OK. That was mostly my question: do we have any in Ontario?

What about water? There was a proposal made for a chair in water resources at one of our Ontario universities. I won't mention which one, because there was an internal difficulty. It was rejected by the actual university, which was a big disappointment to me. What do you think—

*Interjection.*

**Mr Norris:** Absolutely, and it comes out, to some extent, in the comment that I made on the committee's interim report. In my personal view, water power is the thin edge of the wedge for the way we should be approaching water management generally in the province. Traditionally, riverine science in this province, certainly in the Ministry of Natural Resources and to some degree in the other ministries with environmental responsibility, is kind of the poor cousin of lake science, which is kind of the poor cousin of aquatic science, which is definitely the poor cousin of forestry science.

We're in a co-operative relationship now with Trent University's watershed science centre. They have a very good program in place and are actually producing some hydroecologists and those types of people. I would certainly support investment in water science generally, and water centres of excellence generally. I think there are a lot of models out there now. I think there are a lot of universities that are working toward that. Guelph is another one. They have a huge investment in Guelph in

natural channel, natural flow design types of things. It seems to me, though—and it's partly because of the legislative framework that exists for water generally, the diversity of it, the disparity between water quality and water quantity—that bringing it together under one leadership would be very helpful both to the water power industry and to water managers in general.

**Mrs Bountrogianni:** Again from my visit to Europe, there will be for the first time in Europe—and it will be coordinated across all the countries in Europe—a master's in renewable energies, which will include, of course, water and wind.

This leads to my other question. At this conference I attended in November, there were a lot of Spanish companies there for wind power. They were also bridging into tidal power or wave power. Is there anything like that done in Canada, to your knowledge, in a significant way?

**Mr Boileau:** I think the technologies that were developed for tidal power—I believe there was some work done on the east coast a number of years ago. There are some difficulties, going back to Jerry's comment about low head, low flow. In this case, there's lots of flow but low head. There are some environmental issues, there are sedimentation issues, and they've never been able to build a business case for investment in that.

But some of the wave technologies that are coming out are quite interesting, with bottom-anchored systems that are environmentally sustainable. They are becoming more cost-competitive. I don't see that as an opportunity in Ontario, clearly, because we don't have the big ocean waves, but the world's opening up as far as renewables is concerned. I agree that there's a real need for Ontario and Canada to get engaged in education programs, and chairs in universities, and leads on renewable energy.

**Mr Norris:** I believe BC Hydro has invested in it recently as well.

**Mrs Bountrogianni:** You answered my other question, which was, of the 10,000 megawatts of wind that's a Canadian target, how much would be for Ontario? I think you said 2,000?

**Mr Boileau:** In our RPS proposal we were very conservative. You'll see that on the table. I think we were suggesting 1,500 to 2,000 megawatts. I think there's more commercial potential, particularly offshore on Lake Erie. There's an estimate on the US side of Lake Erie that there's 144 terawatt hours of developable wind power on Lake Erie. Clearly that wouldn't be acceptable from the standpoint of putting thousands of towers out, but that's the same amount of electricity that's consumed in Ontario in one year.

It would be reasonable to assume that the combination of wind power development and water power development could easily deliver 3,000 megawatts of competitively priced renewable energy into Ontario. We need some bridge in order to cover the gap between our costs in the current market, but we won't need that after 2010. Three thousand megawatts is a lot of power and would

account for a good chunk of the load growth that's going to come in this province.

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We also have to consider that in coming years we're going to see some retirements of facilities. At the end of their useful life, rather than reinvesting money in some fossil plants, they may be shut down. We have to have some capacity for dealing with that and some energy storage systems. That leads into one of our next presentations: the need to marry the strategy behind wind with water power storage and reservoirs so we can deal with a changing market mix.

**Mrs Bountrogianni:** Thank you. If there's any time left over, Lyn wants to—

**Mr McLeod:** I have just one quick question to Paul, actually. I have frequent briefings with David on the wind power situation. I apologize, Paul, for not having been here when you made the presentation on water power. I understand you did deal with environmental assessment issues. Could you just tell me whether in your presentation you dealt with the basic question of your sense that realistically there is a fair bit of water power development, which I know is primarily left in north-western Ontario in terms of potential, without significantly changing the environmental standard we have for assessment now?

**Mr Norris:** Without significantly changing the standard. What we as an association are doing is trying to go beyond the existing regulation for environmental assessment to develop a class for the entire sector.

**Mrs McLeod:** A class environmental assessment. We talked about that about 12 years ago, as you remember well.

**Mr Norris:** Yes, I know. I was there. But this time, I think we have a hope, because I think that the framework that has been put in place under regulation 116—contextually, it's a class EA for the sector. Our aspiration is to engage the Department of Fisheries and Oceans, which has a key role, the Canadian Environmental Assessment Agency, the Ministry of Natural Resources for their mandate and the other stakeholders—First Nations, the environmental community—to talk about that precise question. How do we propose to have a process in place, from an environmental assessment perspective, that meets the needs and expectations of the industry developing the proposal and the other stakeholders in the development process? I hope to know a year from now, after we go through the development of a class process, whether or not that is realistic. That's a very real question. We're confident that we can put in place the right measures in order to achieve the goals of environmentally sustainable economic development. But it's something we'll have to prove, as an industry.

**Mrs McLeod:** I'll be interested. As you know, I have long been a proponent of some form of class EA for water power development. Then you get some, shall I say, renegade proposals that come to the fore every now and again that give you cause to think, "No, you've got to assess every project individually," because some of them

are renegade proposals and they need to meet a standard and I would not want to see them slip through.

**Mr Norris:** Absolutely. One of the key differences I think you'll see if the Ministry of Natural Resources adopts our recommendation is that, rather than an allocation policy that is analogous to the mining industry staking a claim, which is what we had in the late 1980s and early 1990s, we are suggesting that, with better investment and the ministry understanding where the resources are, doing a GIS overlay of what the significant known considerations are, from an RFP perspective, we'd be in a better position to have up-front identification of issues. A lot of the reasons those 300 development proposals of those renegades didn't go through in the early 1990s is because it was a gold rush mentality, with some people who were competent and could take a development through and others who, quite frankly, were not. We as an industry have a responsibility to make sure that we continue to be viewed as a preferable energy source, and that's one of the ways to do it.

**Mrs McLeod:** Thanks.

**The Chair:** Thank you very much. We'll move on to the next presentation on RPSs.

**Mr Boileau:** This slide presentation goes into some detail on RPS, but I think there's a fair degree of familiarity with the RPS structure, what it does and how it operates, so I may skip over that fairly quickly if the committee agrees that that's worth doing.

A renewables portfolio standard: a made-in-Ontario solution. Clean air, a secure energy supply and jobs and investment are the targets, the objectives, in a renewable portfolio standard.

I said at the beginning of my presentation, when I started to speak about the recommendations, that PTC, or production-centred renewable portfolio standards, are crucial parts of our recommendations. Without them, all of the other recommendations mean nothing, because you won't get investment. We could have great tax exemptions and no capital taxes and holidays on royalties; but no RPS, no investment—it's as simple as that.

Right now investment is flowing away from Ontario into jurisdictions that have RPS and other incentives. We need a bridge incentive for the period from now until 2010, and we suggest that there is no requirement for incentives beyond 2010 or 2011, because we should be competitive.

The RPS recommendation, I should tell you, isn't a unanimous type of recommendation, but we were very careful to try to include consultation with a variety of stakeholders. Clearly, the Wind Power Task Force and the Ontario Waterpower Association corroborated very closely because the bulk of the RPS capacity additions are going to come from those two sources—we think. And since we're here, that's what we're telling you. But we worked closely with IPPSO and CanWEA and other stakeholders in the development of the recommendations. We also know there's a strong indication from reading the committee reports that RPS has broad support in other jurisdictions and from environmental groups everywhere, including here in Ontario.



I won't go into the details on RPS and what it does, but it's important to remember that RPS has associated with it renewable energy credits that have a value. So if you produce electricity from a new water power station or a wind park, every unit of energy, every kilowatt hour, would have an associated renewable energy credit. So when I refer to renewable energy credits, I'm talking about that other product. There's the energy product and there's the green attributes, and that's what I'm talking about.

When we looked at it, we had a number of objectives: we wanted to encourage investment; we wanted to propose something that would help the Ontario government meet its emission reduction targets; we wanted to commit Ontario to sourcing 8% of its 2010 electricity consumption from qualifying renewable energy. We felt that whatever we proposed in terms of additions, percentages, increments and graduations must be realistic. In other words, it would be stupid to recommend 20% if it was going to cause a rush to buy RECs and push up the value of those RECs.

So we had to look at what was available in the market in terms of resources, what the capacity of the industry and the financial community was to bring these projects on, and at what price. I'll come back to price later on.

We also wanted to propose something that was inclusive of all renewables. This is a subject: is water power renewable? Well, of course it's renewable. It's the ultimate renewable. In Ontario, we've got 25% or 26% of our energy coming from water power. There is no good water power and bad water power. There are some good water power projects and there are some bad water power projects, but they have to be looked at from an objective standpoint. So we wanted to be inclusive of all renewables, including solar, including other technologies—geothermal, wave or whatever happens to come up. The world is changing very quickly. So we looked at that and said, "Let's be inclusive."

We wanted to make sure that the recommendations didn't strand existing assets. We're all taxpayers and ratepayers. We paid to build the nuclear plants, we paid to build the coal-fired plants, we paid for this huge system we have here today and we're going to continue paying for it for a little while, for the next number of years. It doesn't make a lot of sense to me, unless there are some compelling reasons why. We should not be stranding assets. There are other ways of dealing with their emissions: cap credit in trade, reduce capacity factors because it's not competitive. If Nanticoke is operating at 50% today and 30% tomorrow in terms of capacity factors, there is a corresponding reduction in emissions. So there are ways of still maintaining the values to the ratepayer, to the shareholder—and citizens of Ontario are shareholders in the generation system right now. So we don't want to strand assets in the recommendations. The targets and schedules must be firm to provide a solid base for investor confidence.

I already told you what our recommendation was. These are the numbers. We went back to 1991 because

the federal government is encouraging everyone to look at the Kyoto Protocol year 1991 as the start date for counting renewables and offsets. So we went back to that. There is about half a per cent in there. So in reality, this recommendation is probably closer to 7% to 7.5% RPS.

We incremented it according to the way we thought industry could bring on projects. For example, if you're going to build the Beck tunnel, it's not going to happen in one year. It takes a long time to do the contracts, drill the holes and commission it. Water power projects tend to take a little bit longer. If you're going to do a wind power project, how fast could you bring on 100 megawatts, 500 megawatts or 300 megawatts? If you're doing an anaerobic digestion project, how fast can you do that? So those are the numbers—you can look at them in your report—and those are the increments.

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This is the breakdown. Water power, we had a capacity of 1,000 megawatts to 2,000 megawatts; municipal waste, anaerobic digestion, landfill and biomass, 200 to 500; wind power, 2,000 to 6,000. These are ranges. So we said, "OK, this industry can deliver between 3,200 megawatts and 8,500 megawatts." We also analyzed the energy component of that, because for water power a large chunk of the capacity is associated with an equivalent energy component, with the Niagara redevelopments.

The percentage of Ontario demand is there. We think there is a possibility of bringing on 7.6% to 18%. We picked the number 8%. Those are the market prices that are going to be required in order to attract that kind of investment and deliver that kind of capacity and energy by 2010.

What does it do for air quality objectives? Well, we asked OPG to analyze it. We said, "Here are the RPS percentages. You guys know what your emissions reduction programs are, you know what the nuclear restart or the nuclear reinvestment program is going to bring on, so give us your numbers." There they are. They are real. There it is with RPS and without RPS. We can get the numbers behind that for the committee but I think the bar graph—it's not a magic bullet, it doesn't address all our issues, and besides that, not all our pollution comes from electricity generation, but that's a pretty significant number on CO<sub>2</sub> emissions.

The next one is NO<sub>x</sub> emissions, which are a big issue in Ontario in terms of air quality and public health. There you have it, with RPS and without RPS. Clearly, OPG is factoring in some of its NO<sub>x</sub> reduction programs and I think perhaps factoring in the restart of the nuclear units and some lower-capacity factors on the coal. That's a pretty significant reduction even without RPS, but RPS makes it look all that much better.

SO<sub>2</sub> emissions: again, significant reductions with an RPS. We said that whatever we proposed had to be measurable; whatever we proposed had to help the Ontario government and Ontario citizens have better, cleaner air. Well, there it is. There are the results.

This is a kind of interesting one. We thought we'd throw this up just as food for thought. It says, "What is

the future role of water power and wind power in this mix?" Well, we've got nuclear. We've got non-utility generation that has fixed, must-deliver contracts. Hydro is represented by this yellow section here, coal is represented by this big blue, and oil and gas are up at the top.

Where do we want our future to be? Do we want another line in here for wind power, and what's it going to do? We talked about how it helps in the middle of the day. So wind power in here—where is it going to take its chunk out of? It's not going to take it out of nuclear. It's base-loaded. It's not going to take it out of the NUGs currently; they're base-loaded. So wind could add to that, and wind-water synergies could make that little bubble there even bigger. So I just ask the question, what is the future role of water power and wind power in this mix? Well, the committee has to answer that.

Cost of RPS: what's it going to cost? There is going to be a variety of factors. The wholesale price of power and natural gas will have an impact. So if prices are high, it's not going to cost very much to have RPS, because you won't have to stretch so far. The value of emission set-asides, renewables and carbon credits will have an impact.

I've already talked about the impact of emission caps on electricity prices from fossil fuels and the federal production incentive program.

Many factors can make the cost of an RPS low. In fact, the scenario exists where an RPS will lower the cost of electricity in the province. I'm not going to get into that right now. There are a lot of actuarial calculations in there, but clearly they're related to the price of natural gas. If we're banking on natural gas being our saviour and the price of natural gas requires 10 cents per kilowatt hour for electricity, then 8-cent wind is going to mean that the prices could be lower with wind, or with a renewable portfolio standard, or with water power development.

The summary or the conclusion to this is that the Ontario Wind Power Task Force estimates that the probable impact on blended wholesale prices is less than 1% for the first years and less than 2% by 2010. I should tell you that those numbers went up before the production incentive went in, so you can reduce those numbers by 40%. A renewable portfolio standard likely is going to cost the ratepayer in Ontario less than 1.5% and possibly less than 1%. That's not a big price to pay, I think, for the political risk of going to the public for the government and saying, "We have to accept a small 1% increase in electricity rates over eight years to reduce our emissions and help us meet our clean air objectives." That's not a big political risk. In fact, I think it's a political winner.

What does the future hold? We're already getting 26% of our electricity supply from renewable energy. Government needs to promote this a little bit. Ontario is already doing a fairly good job on renewable energy. We can build it, and we can build it up to 34% with the RPS. That's pretty significant. But what would happen if we had a conservation program and what would happen if

we extended the RPS programs beyond 2010? Could we get 35%, could we get 40% of our power coming from renewables? Could we get 50%? I don't have the answer to that, but clearly it's a question that deserves answering.

We just have two more short ones. I hope we haven't confused anybody by the association between the wind and water power side. We thought it would be useful to just try to show you why we think there's a real link here. It isn't because Paul and I have just worked very successfully, I think, with the Ontario government and a variety of ministries; it's because there are some real synergies that have been discovered in other jurisdictions. By way of illustrating that, Denmark has been able to go up to 17% of its electricity supply from wind largely because they've contracted bilateral contracts with Norwegian reservoirs to deliver power during low-wind periods. There's a synergy, I'll tell you, and it works.

**Mr Norris:** Very quickly, this presentation actually is an excerpt from some work that was done by the university of Quebec. Back to the earlier question about centres of excellence, I think it's a good example of what can be possible. The university of Quebec, in partnership with a number of other organizations, looked at this question with respect to what is the reality of investment in new water power, new wind power and how the two can work together. An obvious synergy for us, when you first look at this, is pump storage. There are all kinds of opportunities to look at the ability for predictable wind power to serve reservoir management in a pump storage scenario. That's an easy example. The people in Quebec have taken it a step further, and I think it's a model that, should the province of Ontario look at a renewable energy strategy, these types of synergies are well worth looking at. So this is with due respect to Mr Gaétan Lafrance. He has been kind enough to share this with us. He presented this at the CanWEA presentation. This is by no means our work, but I think it was a useful exercise.

We're going to talk about the electricity system mix, some of the wind power challenges, integration in the existing generation grid. David is going to talk a little bit about wind farm integration into the Canadian grid, the lessons from the studies they've done in the province of Quebec and in fact have extrapolated across Canada.

I go back to this 10,000 megawatts by 2010. I think what we'll find here is that if you marry water and wind, that's completely possible. They looked at hydro-wind optimization for the Quebec-Labrador case with the Ministry of Natural Resources there and they had other partners in Helimax and IREQ. They wanted to look at the relationship between load and wind power and cold regions. So it wasn't just to the province of Quebec. They looked at how they were managing their reservoirs, and the fundamental question was, "Should we build new waterpower, should we invest in gas generation or are there possibilities to use existing wind resources?" I think they came up with some pretty astounding results.

There's the existing power generation mix. We talked about 65%—this is Canadian—for hydro on an average,



and of course that's largely representative of the province of Quebec, British Columbia, Newfoundland and Labrador and Manitoba, and Ontario at 26%. This just demonstrates where hydro appears to be going in the future versus the other sources. We couldn't change the French to English, I'm sorry, but it's carbon, oil, gas, nuclear and hydro. It just gives you, if you look at the slope of these graphs, a relative understanding. It's confirmed, for example, in the province of Ontario. If you look IMO's projections for the next 10 years for load growth, they're projecting it's all service by gas.

So 10,000 megawatts by 2010; what that would represent, in context, is 7% to 8% of the Canadian power capacity, 4% to 5% of Canadians with electrical energy by 2010 and 33% to 50% of the electrical demand growth. It's completely consistent with an RPS that David just talked about at 8%. If we were talking a 2% growth over the next 10 years, as IMO is suggesting, you can get 33% to 50% of that out of an RPS at 8%.

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The traditional thinking in wind power was that integration of large wind farms is too risky because it's intermittent generation—I think David has dispelled that rumour, hopefully, with some discussion on his earlier presentation—and that we need a backup to ensure power supply. Typically, if you do this environmental-economic analysis associated with wind power, you have to factor in where you get your backup supply. If you get your backup supply from coal to supplement intermittent wind, your environmental implications are just as severe as if you're using coal, although on a smaller scale, depending on how much wind you've got.

The traditional thinking is that wind's too costly in the province of Quebec. The questions they asked themselves are: how true is that statement for across Canada? Are we really looking at this from the right angle? Are we really looking at synergies versus competition? Traditionally, you look at wind versus water versus this versus that. Quebec, I think, has done something quite innovative and looked at how the two can work together.

The rest of the presentation is on wind and water power.

**Mr Boileau:** That's exactly right, Paul. They did take an unconventional view of the synergies. So are there any advantages for the hydro-wind concept? By the way, we seldom use the word "hydro," because it's confusing in Ontario. We use the term "water power." So, are there advantages for the water power-wind concept?

The Quebec study looked at reservoir management and possible concepts. Hydro is used for base and medium load, and the conventional thinking in the future is that you're going to have to bring in gas turbines to supply the peak load. The emerging concepts are that you could purchase electricity from neighbouring networks instead of building gas turbines. The weakness with that is that there is no change in greenhouse gas issues, because they just build them over there or they burn more coal to supply your electricity, and Quebec would have no control on market price and supply.

Another emerging one is gas turbine for baseload. That's been looked at in a variety of jurisdictions, including Quebec, BC and Manitoba. The weakness with that again is that you don't get away from the greenhouse gas emissions and you don't entirely get away from the NO<sub>x</sub> emissions that are there. There are still SO<sub>2</sub> emissions that are involved in the production of gas out west. Even though SO<sub>2</sub> is largely stripped from our gas, there's still some process SO<sub>2</sub> that ends up in the air.

The third emerging one is that wind power competitiveness is improving.

This is an interesting overlay. What the Quebec study did is they looked at wind speeds and they matched it to load on an annualized basis. I said before that our wind speeds and the density of our air in the wintertime are higher. We are a cold climate; so is Quebec. Look at the nice match-up between load and wind on a monthly basis from 1985 to 1995. It's very interesting.

Here's another situation that's kind of interesting. This blue represents the reservoir volumes or the inflows into reservoirs, and this red line represents the Quebec load and its export load. You can see that in the period of the year, the summertime, when its load is the highest, its reservoirs are at their lowest point.

This is a weekly load demonstration here, the load being the red line throughout the week and the blue being the wind production for that. If you normalize that graph, again there's a nice relationship.

I should explain that many of these slides jump around because we didn't do the whole presentation. It would have taken too long and many of the slides were mostly in French, so it would have been difficult to explain what it was. But this was particularly interesting. The objective of the Quebec-Labrador study was to see how wind power optimizes reservoir management, determine the maximum size of a wind farm that could be installed without any significant investment in the electric system—in other words, putting in more transmission lines, adding backup and things like that—and what is the best geological strategy to locate wind farms according to market, reservoir, management, power system constraints and wind quality.

So they looked at that for Quebec, but do we have some similarities in Ontario? Sure. We've got big reservoirs. Lake Superior is a reservoir, in case nobody knows it. There are power dams and control structures at the end of Lake Superior; effectively, a lot of the Ottawa system. The amount of storage that's available in Ontario is huge. It can make up to 30%, 40%, 50% of the peak that has to be supplied during the daytime. It's just amazing. And seasonally it's pretty significant.

The main conclusions? We'll just jump right to these. The conclusions of the study said that large wind power capacity can be integrated into the existing power system without additional transmission investment. That was interesting. "For the Quebec-Labrador power system alone, we do not notice"—that's Lafrance—"any reservoir spillage for wind power capacity that reached 8,000 megawatts." What does that mean? They put 8,000

megawatts into their model and they ran it according to their wind patterns and the reservoirs didn't overtop and spill. In other words, a lot of energy went into storage. Instead of producing power from water power, they stored water, so it was available for another time, and they didn't spill up to 8,000 megawatts. That's really significant.

What does that mean in Ontario? Are our reservoirs always full? The answer is no. Our reservoirs are mostly part full because you're exercising the reservoir. What would happen if your reservoir was more full? Two things: you would have more power stored, more energy stored for when you need it during droughts and during certain times of the day, the month and the week. More importantly, a lot of your power generation is located on the reservoir. A higher water level increases the head and increases the efficiency and the performance of the turbines.

According to the Quebec-Labrador case, a general rule can be assumed: in the water power type of system tested, at least 10% of Quebec electricity needs could be provided by wind power without capacity additions from other sources. Pretty interesting. That means without adding more gas-fired generation, without having backup. The backup is the fact that you're storing energy in the reservoirs.

Here is an example of that graph. They ran a couple of different scenarios but basically what happens is that your reservoir levels, on average, stay higher because of the presence of wind. So energy gain is a function of the reservoir level at the beginning of the period. Full reservoirs improve turbine efficiencies so that they are better able to meet daily and seasonal demand.

Load and wind correlation: I think I'll skip through this one because we're getting tight on time. Here was one of the maps they produced. They said that when they analyzed Ontario, Quebec and the eastern Canadian reservoir capacity and all of the reservoir capacities out west, they think that they could get a very good match-up with 7,000 megawatts happening in eastern Canada. They don't break it out in terms of Ontario, Quebec and the east coast, but it might be safe to assume that our number of 2,000 fits in very nicely with that; Manitoba and Saskatchewan, 900 megawatts; BC and Alberta, 2,100 megawatts. That's a possible Canadian strategy. Why is it a strategy? Because it marries wind and water power.

We're basically saying that from a technical standpoint it seems manageable to extrapolate the results of the Quebec-Labrador study to other hydro systems in Canada by distributing wind power according to the size of existing hydro capacity by region. Do we need to study this in Ontario? You bet we do. We need to understand that synergy. That's it for that one.

I think Paul is going to close with just a few comments on the interim report.

**Mr Norris:** Do we still have time?

**The Chair:** We're down to somewhere around seven or eight minutes.

**Mr Norris:** All right. I'll do it in four.

We've provided—and hopefully everybody's had an opportunity to have a look. Both the Wind Power Task Force and the Ontario Waterpower Association provided direct written comment on the interim report, on the specific recommendations of the report. I'd just like to open by congratulating the people who put together the report. I thought it was very well done and that it flowed logically. Instead of going through those specific recommendations, you can read them yourselves. What I'd like to try to do is tie together what we've said already specifically related to what you've suggested in the interim report from policy questions.

To me, there are basically five themes that come out of the interim report: Do we need direction on renewable energy? What are reasonable and relevant targets to achieve that direction, if we do? What are the economic instruments that best serve that purpose? How do we achieve this in the context of resource management? How do we coordinate objectives? To me, those are the themes that have come out from the interim report.

Clearly we need direction on renewable energy in this province. The last time we had any kind of renewable energy development in this province, the direction came from Ontario Hydro's demand-supply projection. We need clear, measurable direction. The reason we need that is because the people who have to make this happen within government are not the Ministries of Energy. It's the Ministry of Natural Resources that manages the 87% of the province that we have. It's ministries like the Ministry of Northern Development and Mines which has the northern development mandate. Until renewable energy becomes part of their core business, it won't happen. It just won't.

We have to have clear targets that say—MNR's job is ecological sustainability, to balance the resource use. If there's no clear direction that this is a policy focus, it won't happen. You won't see new wind development and you won't see new water power development.

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We need reasonable, relevant targets. In our recommendations, we've tried to come up with numbers instead of ideologies. We need specific targets, and we think that we should bring together the water power, the wind power, the biomass people, the Pollution Probes of the world and come up with some reasonable targets. What I would hate to see is somebody shoot down an RPS or some other mechanism because they couldn't agree on what the targets should be. We think there needs to be additional dialogue in that regard. We think you should position those targets in the context of environmental objectives, most notably related to Kyoto and MOE's air quality initiatives. A renewable energy strategy has to be part of something, and we think all the planks are there.

We need provincial policies designed to enhance renewable generation and we need them to be inclusive of water power, particularly in view of our significant role in enhancing the value of wind generation energy.

I've seen a lot of public debates on green, on big water power versus small water power. We've advocated that



there be no minimum threshold for EA and that you judge a development on its merit. We think that's environmentally responsible as opposed to some artificial definition for storage or size or whatever.

The economic instruments: clearly, what we've proposed is the RPS. We think that's the most effective, inclusive mechanism for all renewables. We think Bill 140's provision needs to be clear that what that did was to deal with the inequity. New gas-fired generation facilities were taxed at about one thirtieth of the taxation for water power facilities. It hasn't spurred this new investment, it isn't the magic bullet, but it's an important plank in a renewable energy strategy and one that we should extend to the wind power energy industry.

Voluntary green marketing, from all I've read, will not convert public opinion and willingness to pay very much. You'll have 2%, maybe 5% take-up. But simply allowing people to market green energy doesn't very often result in a huge uptake when it comes to time to pay. Therefore we believe there need to be additional incentives to trigger the required investment to meet RPS objectives.

David talked about the production incentive. That's a great step forward. It doesn't do anything for water power. I just want to make that point. It's specific to wind; it doesn't apply to water power at all.

I think we need to build and improve on the federal challenge, and I think we have to have a comprehensive renewable strategy as opposed to one for specific sectors. We don't recommend direct government subsidy. We would like to see market-designed incentives, consumer-based choice incentives and tax regimes that address policy priorities.

Resource management: as I said, water and wind power development and any other large-scale development are really related to who owns the land, and the people of the province own the land where new development is going to happen for them predominantly. So you have to have a method that deals with integrated resource management, that deals with balancing competing uses. In my view, MNR is in the best position to do that. MNR does not have a renewable energy mandate, as I suggested, but if you're looking to an organization that has to balance competing issues now, that's probably the one you would start with, in my view.

You've already invested in an NBR, committed short-term resources to the ministry to deal with water power, and David has made some suggestions with respect to wind power. This isn't a short-term commitment. We saw what happened in 1989 to 1993, when it was a short-term commitment. We created a huge bureaucracy around water and wind power and peat and everything else and then it collapsed upon itself in about three years. If you're going to have a strategy to get to 2010 and beyond, this is going to have to become a core business of the relevant ministries.

In the coordination of objectives, it's definitely important to coordinate provincial and federal programs, but I think it's equally important to coordinate access to information and knowledge. The federal government, through Natural Resources Canada and other organiza-

tions, has a base of knowledge and information and regulatory responsibilities that in the absence of co-ordinating can stymie any new investment.

**The Chair:** We have less than one minute.

**Mr Norris:** OK. I've already dealt with educational institutions and partnerships. Can you skip to the second one?

Here's our view on this. I'll close on this. What does a sustainable energy future look like? Number one, conservation. We're here to talk about renewable energy, but any kind of sustainable energy future has to have conservation as a primary priority.

Renewable energy? Absolutely. Fuel switching, cap credit in trade, education. Those are the five planks that we would see of your strategy.

Thanks for your time. Sorry for the delay.

**The Chair:** Thank you very much for your presentation. The full half-hour is up.

Unless there is further direction from the committee, the committee will now adjourn. We'll be meeting at the Kakabeka Falls.

**Mr Boileau:** We have a bus waiting outside.

**Mr Gilchrist:** We have one question that Mr Ouellette has that will only take a minute.

**The Chair:** OK. I see unanimous consent. Please go ahead, Mr Ouellette.

**Mr Ouellette:** Essentially, the question deals with the presentation on wind power and the retention of water for future storage. If I were in the business and it were privatized, the first thing I would do is deplete those and sell them to the States.

How can we ensure that we're going to maintain Ontario's stable prices when opportunities are there to export the product to the States? If we're going to supplement with wind power in order to retain and use hydro for peak loads, how can we ensure that it stays in Ontario? Possibly something like a rebatable domestic users tax, so that, in compliance with free trade, you make sure that any electricity leaving Ontario is heavily taxed so it can subsidize domestic use, or minimize the use of an expanded tower transmission capacity to ensure it's retained in Ontario?

**Mr Boileau:** I'm not sure philosophically what the long-term objectives of an open market are. I think an open market implies that we're going to have an open market with other jurisdictions. If we have an open market with other jurisdictions, clearly part of that will be bilateral contracts between loads and generators, so generators who are smart will want to package together various sources of supply from wind, water power storage and fossil.

With regard to selling product outside of the province, personally I don't have a problem with that. If we are selling renewable energy outside the province, we are presumably going to be selling it into the jurisdiction on that map up there that has a whole bunch of fossil generation that has flown across the border. We don't have any barriers on their pollution coming into our province, flowing across the border and making the people of Ontario not well.

My response to that is that I would hope Ontario not only builds a good renewable industry and has competitive rates, but that in addition we build a large renewable industry, a good wind power industry, and we export renewable energy to the United States as well to reduce the emissions from that source, which are the major causes of pollution in Ontario.

**Mr Ouellette:** The other side of that coin is, though, that as long as we export it, there is little incentive for companies to locate in Ontario. If we have incentives or reasons for people to come to Ontario to produce those jobs, we can retain them here. I think it's part of government's mandate to ensure the best interests of the public at large.

**The Chair:** With those comments, the committee now stands adjourned. We will be visiting Kakabeka Falls prior to returning to Toronto. The bus is waiting outside. I understand you had invited them to bring their luggage with them and be dropped off at the airport on return.

**Mr Boileau:** Mr Chair, Marie has a flight at 4:35, so we have arranged for other transportation back for her in case we're running a little bit late. Anybody else who has to be back, it's the same story. So if everybody can try to be on the bus in 10 minutes.

**The Chair:** Thank you very much. The committee is adjourned.

*The committee adjourned at 1328.*











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Second Session, 37<sup>th</sup> Parliament

## Assemblée législative de l'Ontario

Deuxième session, 37<sup>e</sup> législature

# Official Report of Debates (Hansard)

Tuesday 19 February 2002

# Journal des débats (Hansard)

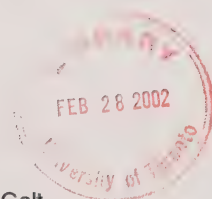
Mardi 19 février 2002

Select committee on  
alternative fuel sources

Comité spécial des sources  
de carburants de remplacement

Chair: Doug Galt  
Clerk: Tonia Grannum

Président : Doug Galt  
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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Tuesday 19 February 2002

Mardi 19 février 2002

*The committee met at 1004 in room 151.*MINISTRY OF THE ENVIRONMENT,  
DRIVE CLEAN OFFICE

**The Chair (Mr Doug Galt):** We'll call the select committee on alternative fuel sources to order.

Our first presenter is from the Ministry of the Environment, the Drive Clean office: Ed Gill, director, and Dave Petherick, consulting engineer. Thank you very much for coming forward. For the sake of Hansard, please state your names and positions. We have a total of 20 minutes for you. What you don't use in your presentation, we'll divide between the caucuses for questions.

**Mr Ed Gill:** Thank you, Dr Galt. Ed Gill, director of Ontario's Drive Clean, Ministry of the Environment.

**Mr Dave Petherick:** I'm Dave Petherick. I'm a consulting engineer to the Drive Clean office.

**Mr Gill:** We have a few slides in front of you. I'll quickly go through them. You can interrupt me if you like, or ask questions at any point in time.

Drive Clean is a mandatory vehicle inspection and maintenance program. It covers all of southern Ontario now. With the expansion of the program to phase 3, effective July 1 of this year, the Drive Clean program would cover about 5.5 million vehicles in Ontario. The primary purpose of the program is to identify vehicles that do not meet emissions standards, thereby repairing them and reducing smog-causing pollutants from vehicles. In 1999 and 2000, in the phase 1 area, Drive Clean has already reduced 11.5% of smog-causing vehicle emissions. These emissions are nitrogen oxide and volatile organic compounds. We've also reduced carbon monoxide by 15%. When the program is fully implemented, we will also reduce the greenhouse gas carbon dioxide by approximately 100,000 tonnes.

Drive Clean tests all vehicles, regardless of the fuel that powers them. There are some exemptions for Drive Clean. Vehicles that are less than three model-years old or over 20 model-years old are exempt from biennial testing, except for resale vehicles. For 1999, which is the latest model that we currently test, that testing began January 1 of this year. As I mentioned, vehicles are tested for three compounds: nitrogen oxides, carbon monoxide and hydrocarbons. All vehicles require that original emission control equipment installed by the manufacturer at the time of manufacture should remain on the vehicle.

I just want to talk a little bit about the repair cost limit. The way the current regulations are, there is a one-time \$200 repair cost limit in the first two-year cycle of the program. So for the first test cycle, which is biennial, once every two years, motorists can use the repair cost limit to get a conditional pass. However, after the first cycle, the first two years, the repair cost limit is replaced by an ongoing \$450 repair cost limit. It's important to mention that a number of motorists are not choosing the repair cost limit or a conditional pass. They choose to repair their vehicles regardless of the repair cost limit. The data we have indicates that approximately 4% of the vehicles that have been tested to date have chosen to go the conditional pass route.

In addition to Drive Clean, we have on-road enforcement through our smog patrol. Vehicles that are smoking excessively, or have missing or tampered-with emission control equipment, are subject to ticketing. After-market propane converted taxis have also been ticketed for missing or disconnected emission control equipment. The ticket for light-duty vehicles is \$305, plus \$75 for victim surcharge, to have a total ticket of \$380. As I mentioned, failure rates are monitored regardless of the fuel, regardless of the emission control systems or kilometres travelled.

The data that we have shows that less than 0.5% of the vehicles that have been tested are alternate fuel vehicles. The total number of vehicles, as I mentioned, was over five million. Light-duty propane-powered vehicles are approximately 15,000. Light-duty natural-gas-powered vehicles are about 4,600.

Failure rates in Ontario, particularly with respect to alternate fuel vehicles, are in sync with failure rates that have been found in British Columbia, where the BC AirCare program began in 1992. As you will see from the graph, we have included both the Ontario data and the BC AirCare data. The natural gas vehicles have a marginally higher failure rate than gasoline vehicles. Propane vehicles have a significantly higher failure rate than gasoline vehicles. It's important to note that we have provided you with some statistics on kilometres travelled. Average kilometres travelled for a gasoline vehicle at the time of the test was 130,000 kilometres. For propane it's 300,000 kilometres, and for natural gas it's approximately 200,000 kilometres.

There are two types of alternate fuel vehicles that are on the market or being used by motorists. They are after-

market conversions, as well as original equipment manufacturers.

Originally, when the after-market conversions began, it wasn't until the late 1980s that emissions were a serious concern in their design. Newer conversion technology, however, is available that can reduce exhaust emissions. On the other hand, the original equipment manufactured alternative fuel vehicles, typically after 1995, employ sophisticated technology similar to gasoline vehicles.

#### 1010

I want to briefly discuss possible causes of alternate-fuelled vehicle emission failures. It is also important to note that approximately 90% of the vehicles that are powered by propane or natural gas are actually after-market conversions. So there are very few original equipment manufactured vehicles being driven. Most of them are extremely high-mileage vehicles and are used for commercial or business purposes. Obviously, one of the reasons that people have purchased commercial after-market vehicles is economic.

It's also important to note that, because of the mileage and the business of the commercial nature of the usage, it is possible that owners of these vehicles are not performing all the necessary maintenance and repairs. It's also important to note that as far as technology goes, particularly for after-market propane vehicles, there is a tendency to have valve seat failure, which results in higher emissions and misfire.

Lack of accurate air-fuel ratio mixtures in after-market conversions prevents the catalytic converter and other emissions control equipment on the vehicle to perform properly. Some operators have tampered with emission control equipment and may have removed some equipment for whatever reason suits them. However, all of these vehicles are subject to on-road enforcement of the Ministry of the Environment through smog control. When after-market conversions are made at shops, it is possible that they are using equipment from vehicles that are retired. Used equipment is continuously being used in after-market conversions.

It is difficult to compare gasoline vehicles with alternate-fuelled vehicles, the reason being that the type of vehicle in the gasoline is fairly extensive, whereas for after-market conversions they only select particular makes and models, the age of the vehicle, the mileage travelled, the usage, business or personal use, and maintenance patterns.

It is also difficult in Drive Clean data to identify which of these vehicles are manufactured by the original equipment manufacturer and which of them are after-market conversions. The action we've taken to date is to require that all vehicles that, regardless of their usage, fail emissions standards need to be either fully or partially repaired to enable them to get the vehicle registration sticker. On-road enforcement looks for vehicles that are highly polluting as well as vehicles that have tampered pollution control equipment.

Drive Clean data are being analyzed continuously to ensure that we're being effective, and also to share it with

various parties, as we have done with the taxi industry, upon request. But it's important to note, as I mentioned, that only a very few people are actually choosing a conditional pass. Most people want their vehicles fully repaired in order to get a full pass.

We will soon begin—actually, we've just started for 1999 and older-model vehicles—to test newer original equipment manufactured vehicles. There are very few on the market currently but, over time, we will gain more knowledge and more data on the alternate-fuelled vehicles manufactured by the original manufacturers.

Once we have a representative sample of the data from the original equipment manufacturers, we will conduct additional analyses and compare them to after-market vehicles and also to gasoline vehicles. It is important to note that with recent approval from cabinet, we are to explore partnerships with municipalities that are willing to partner with us and do annual testing of taxis and high-mileage commercial vehicles. That process has begun. It is on a voluntary basis for municipalities that wish to cooperate with us to conduct the annual testing of taxis. Currently, the testing is biennial, which is once every two years. Over time, we will also analyze emissions from after-market vehicles with respect to the OEM vehicles, particularly in the context of high mileage.

That is my presentation. I welcome any questions.

**The Chair:** Thanks very much. We have approximately three minutes for each caucus, starting with the official opposition.

**Mr Ernie Parsons (Prince Edward-Hastings):** This program continues to be not without controversy, and I say that based on media reports in credible trade magazines and credible newspapers, taking vehicles from one spot to another and going to 11 different garages, and it passes seven and fails four. We're seeing suggested tricks on how to get it to pass: drive it quickly on the highway and warm it up and bring it in and don't idle it and so forth.

That, to me, throws into question the accuracy of your numbers. I know that each time the media do this and they approach you, you say, "Well, there's an explanation for it." But I'm not yet convinced where the line falls between a good public relations gesture on the part of the government in a meaningful test. What is your defence to all the trade magazines that say there's a tremendous amount of inconsistency from one test to another?

**Mr Gill:** First, I'd like to point out that about a year and a half ago we did an opinion poll of people who went through the Drive Clean experience, both in phase 1 and phase 2. Over 91% of the public was satisfied with the Drive Clean experience. Also, in phases 1 and 2 we found overwhelming support for the program. Over 80% of the public that was surveyed supported the program and was satisfied with it.

In addition to that, we have an independent auditor, which is a partnership of several businesses that are specialists in this business. They conduct an independent audit of the Drive Clean program. They have categorically stated that of the about 37 programs that operate in



North America, Drive Clean is one of the best such programs.

I'd like to address your question about vehicles that have intermittent problems. As any technology, there are some vehicles that have intermittent problems—a valve is stuck or you have an EGR valve that's malfunctioning—and those are the borderline vehicles. In some instances, if the valve is functioning properly, it'll pass; if it's not functioning properly, it'll fail. These represent less than 1% of the vehicles that we have tested.

In addition to that, if a motorist has concerns about a test or the validity of a test at any location, we will offer a test at a government-approved facility. The equipment itself that is used at Drive Clean facilities and the automotive garages is completely tamper-proof. If you tamper with that equipment, the facility is locked out. In addition to all of that, we do overt and covert audits. We have our own ghost cars that we send around to Drive Clean facilities to ensure that the integrity of the program is maintained.

**Mr Parsons:** That didn't answer my question.

**Mr Gill:** I mentioned that there are vehicles that have intermittent problems.

**Mr Parsons:** I accept that, but I also know that's not what we're talking about. We're talking about a vehicle that a newspaper or trade magazine has had tested one hour apart, which has been prepared by extremely qualified mechanics, and it passes some and it doesn't pass one an hour later. I don't believe that's an intermittent problem; I think it is a reflection that there are too many variables to get a consistent result. That's my concern. That's what people are saying to me.

**Mr Gill:** We did hear a number of people, as you said, in the business. One of the things we've done for the wintertime, for example, is the treadmill, or the dyno, where the vehicle is driven at about 25 miles per hour. There is a time period that changes from summer to winter for warming up the vehicle, to get it to an operating temperature, to get the correct reading.

**The Chair:** Thank you very much, Mr Parsons. The reason we invited them to present was because of presentations made by taxi drivers who were using propane and natural gas and were dissatisfied with the performance of those vehicles and were concerned with the testing of those particular vehicles.

**Mr Jerry J. Ouellette (Oshawa):** First of all, with regard to your comments, Chair, the research I did following up on the propane testing was that the conversions found in the after-market were specifically—there are two ways to tune a vehicle: one is for emissions testing and one is for mileage. If you tune it for mileage, which most of the taxi people would tune it for in order to get the best possible efficiencies, you lack in the emissions testing. That's where they fail, according to the experts I met with who came in from a number of jurisdictions throughout North America, and I spoke with them on this particular issue. Those are the reasons they gave me.

However, Mr Parsons has opened a bit of a door that I would like to ask, as well. You mentioned, as relates to your presentation about resale vehicles, "after three years." Why are they not exempt within that three-year period, of a new vehicle, and also a resale that has been tested within six months?

**1020**

**Mr Gill:** There are two questions there. The first question is, why are we testing resale vehicles? There are exemptions for resale vehicles as well. Any vehicle that's the current or future model year is exempt from Drive Clean testing. So this year any vehicle that's 2002 or newer, if you can find one, will be exempt from resale.

The reason we've instituted this particular test requirement is for consumer protection primarily, so the owner of a used vehicle does not get stuck with expensive repairs. A number of times, especially for newer vehicles, vehicle owners are actually pleased if they find out there is a problem, because they can get it repaired under warranty.

**Mr Ouellette:** But that warranty is usually for five years.

**Mr Gill:** That's correct. That's a measure that's very consistent with other jurisdictions in North America. As I mentioned, there are approximately 37 such programs and our test requirements are extremely consistent with the rest of them.

The other question is about the validity of a pass certificate. We did listen to the public. This was an issue that caused a number of public complaints. Since January 1 of this year we have extended the validity of a pass certificate to 12 months.

**The Chair:** Does anyone have any questions related to the taxi operators and the reason that we invited them here?

**Mr Steve Gilchrist (Scarborough East):** I guess from the test results you've brought to us here, there are a number of questions. I certainly would not presume to ask you to make policy; that would put you in an awkward position. But from the test data it would appear that the failure rate is significantly higher for propane-powered vehicles, not just here but in British Columbia. As this committee wrestles with the need to put in place the most proactive and environmentally responsible strategies, what direction should we take in terms of support for alternative petrochemical products? Would it appear on the surface that propane is a bad investment, based on the failure rates you've experienced? Or are there any other extraneous issues that might explain why the test results have been so bad for propane?

**Mr Gill:** If I can point out, slide number 8 speaks to possible causes of alternative fuel vehicle emission failures. Also in the graph that we presented to you, we've identified average mileage of the vehicles. You can see there that the average mileage for propane vehicles is about 300,000 kilometres and the average mileage for natural gas is about 200,000 kilometres as compared to about 130,000 for gasoline vehicles. So that in itself is one factor that plays a role in failure rates. The

other is maintenance and repair. The primary reason we've instituted Drive Clean is to identify vehicles that do not meet emission standards regardless of the fuel type; they should be repaired or taken off the road. That's the purpose of Drive Clean.

The other issue that's extremely important is the technology of after-market conversions and the technology that's used by the original equipment manufacturers. The original manufacturers now use similar emission control technologies for gasoline as well as for alternative fuel vehicles.

**Mr Gilchrist:** But the question arises, then, in fact, from the limited data we have before us here, one of the explanations might be that propane vehicles had an average of 300,000 kilometres, do you have data for vehicles that were gasoline- or natural-gas-powered that had 300,000 or more kilometres on them, and what were the failure rates for those technologies?

**Mr Gill:** It is rare for gasoline-powered vehicles to have mileage that high, but I didn't say it doesn't exist. That's an area that we'd like to research some more: comparing apples to apples and looking at vehicles that have similar mileage.

**Mr Gilchrist:** So you don't at this point have data on natural gas or gasoline vehicles sorted by kilometrage?

**Mr Gill:** The data exists. It's to mine that data and conduct the analysis. As I mentioned, there are only a few vehicles that probably can be identified with that high a mileage.

The other thing to note is that the mileage data that exists in our database is dependent on the inspector that does the testing. In an automotive repair shop, whatever is entered into the computer is entered by the inspector. So there are some verification and validity checks that are needed in the system.

**The Chair:** I did allow you to go a little over on the time but it was zeroing in on the issue and why you were invited, and that's why I allowed that. But you're just about to the 20 minutes in total. Thank you very much for coming forward. We appreciate your time.

**Mr Gill:** Thank you for inviting us.

**Mr John Hastings (Etobicoke North):** Could Mr Gill supply to legislative research the amount of money spent on this program since it was initiated in 1999?

**The Chair:** By the government?

**Mr Hastings:** Yes, and whether we have reached the minister's prescribed announcement of 22% reduction in smog or pollutants from when the program started.

**The Chair:** OK. We'll pass that on to research and look forward to the response.

Thank you for your presentation.

#### ONTARIO PETROLEUM INSTITUTE

**The Chair:** Our next presenter is Steve Fletcher, executive director, Ontario Petroleum Institute. If you don't mind, just state your name for the sake of Hansard. You have, in total, 20 minutes. What's left over from

your presentation we'll divide up between the caucuses for questions and comments.

**Mr Steve Fletcher:** Good morning. I'm Steve Fletcher and I'm the executive director of the Ontario Petroleum Institute. When I saw the mandate of this committee I got quite excited because it talked about finding alternative sources of our existing fossil fuels, and because we import about 98% to 99% from Alberta, I thought what a great opportunity to talk about Ontario's production.

Who are we? I'm going to just go through the slide deck. We are a 375-member industry association representing the exploration, production and storage of crude oil and natural gas in the province and have been in existence since 1961. A historical note: the global industry started in Ontario in 1858 in Oil Springs and is actually still operating there.

With regard to the size of the current industry, in 2000 there were 1,100 onshore oil wells producing 1.5 million barrels of oil; that represents about 1% of the provincial requirements and has a value of \$68 million. The cumulative production since 1863 has been 79 million barrels. Proven reserves of oil are approximately 12 million barrels. That's essentially if you do nothing else. If you don't drill another hole, if you don't do any more exploration or add any new technology, that's what you should extract from the ground. The potential reserves are in the neighbourhood of 232 million barrels. So we're about a third of the way there, and that's common for a very well-explored basin. I'll get back to the differences between proven and potential later on.

In terms of natural gas, in 2000 there were 1,200 onshore gas wells and 550 offshore natural gas wells, and that produced 15 billion cubic feet of natural gas, which represents about 1.6% of the provincial requirements, at a value of \$102 million. Cumulative production since 1906 has been 1.1 trillion cubic feet. The proven reserves of natural gas, again, if you do nothing, are 380 billion cubic feet, and the potential reserves are 1.2 trillion cubic feet.

Storage is another part of the industry. There are 25 designated natural gas storage pools operating in Ontario and they have a total capacity of 237 billion cubic feet. That represents over 60% of Canada's total natural gas storage capacity. On a cold winter's day that storage meets 55% of Ontario's demand for natural gas. The pipelines coming from it aren't big enough to meet the demand, and that's where the gas is extracted from the storage. On a year-round basis, that's approximately 25% usage from storage.

The natural gas is stored in depleted oil and gas reservoirs. It's nature's best unit to hold on to these things. It's held on to it for millions of years. They re-inject it and use it on demand, as required.

In 2000, over \$10 million was paid in royalties to landowners in Ontario. In southwestern Ontario, it's freehold rights, so the landowners own the minerals beneath their properties, which is not like other provinces. It accounted for 1,300 direct jobs, representing one



in every 800 jobs in southwestern Ontario. You'll see that the oil and gas exploration and storage is basically south of a line between Sarnia and Niagara Falls. The average employment income for the sector is one of the highest in Ontario. They are very well-paying jobs.

Page 7 has a basic layout of where the pools are. The lake is essentially all natural gas. The western part of southwestern Ontario is virtually all natural gas. When you get into Lambton, Kent and Essex counties, it's oil and gas, and Lambton county is where virtually all of the storage is concentrated. There is a basin out of Hudson Bay. Research has been done up there. It was deemed, back in the 1970s and 1980s, not to be of economic value. It exists. There's probably one Tcf there, but it's in a very remote area and, using the technology at that point in time, not deemed to be economical, but it does exist.

### 1030

I'm going to take a little bit of a jump on slide 8 and look at sort of energy development over time, a very rough graph of the energy dependency of our society. As different modifiers and different drivers have come into play, our energy demand has dramatically increased and is getting to the point where, 2000 and beyond, we don't know what that curve looks like, if it keeps going at that same rate, or are there going to be modifiers and drivers that are going to bend that curve down? Again, these are snapshots, they're predictions, and this is an industry that notoriously has a very wide variety of forecasts happening.

In terms of the projected world demand over time, this is a study done back in 1997 as to where they think the energy is going to come from. If you buy the argument that indeed world energy is going to continue to expand, the fossil fuels over the next 40 to 60 years are going to peak and start to be of less importance. It's these alternate fuels that are the bulk of what this committee is talking about. That's where people are saying they have to step up to meet that energy demand. Again, it's a snapshot and it doesn't necessarily reflect the market forces as varying price points increase and decrease.

Chart number 10 is another way to look at the gas potential. The top line is EIA demand, which is the Energy Information Administration. Basically, it's US demand for Canadian gas. It has a steady, ever-increasing outlook at the start of 2001, but you'll see a little downturn, that they revise their demand numbers. As the price for gas spiked, there's a lot of switching going on to other fuels. As the economy turned, the demand for gas also lessened. So at one point, where you were predicting that perhaps supply would exceed demand, as demand drops off, we see pricing dropping off.

To put into perspective some of the new gas that they say is coming on-line, at the very bottom is the Scotia Shelf, the Sable Island projects, and the Mackenzie Delta. Their assumption is that they are going to actually build the pipeline and bring that gas down. It has an effect; it doesn't have a dramatic effect. But again, this is a snapshot. If you do nothing—don't invest, don't let the market react to things—this is a possible scenario that

could pan out. It hasn't historically done that. The industry and the buyers have reacted accordingly.

I'm going to flip again. Item 11 is looking at New York. New York has an industrial and energy production and energy consumption profile very similar to Ontario. I would urge this committee to look at New York and what they are doing. The New York State Energy Research and Development Authority was created in 1975 as a reaction to the oil crisis of the 1970s. Unlike other institutions which assumed that the energy crisis was over, NYSEDA stuck around and began investing in research. They derive their basic research revenues from an assessment on the electricity and gas within the state, and they have an annual budget of about \$125 million.

NYSEDA's principal goal is to help all New York state utility customers solve their energy and environmental problems, while developing new innovative products and services that can be manufactured or commercialized by New York state firms. I've given you the Web address. They have very much an R&D focus and they use a blend of technologies, heavy on the conservation, and it tends to act as a catalyst. It doesn't necessarily do anything, but it makes sure the appropriate people are looking at the issues that are at hand.

One of the aspects to the NYSEDA program is that there is an indigenous natural gas and petroleum program. If you take the words from their documents and substitute "Ontario" for "New York," you'll have a very similar profile. New York has been a natural gas and petroleum producer since the mid-1800s. Today, indigenous natural gas production in New York accounts for about 2% of natural gas demand, which is very similar to Ontario. Though a small percentage, natural gas production could have a major economic impact on localities. By increasing exploration and production of natural gas in New York, the state's energy dollars stay here, rather than flowing to the southern states and Canada.

NYSEDA's role is to work with New York's industry to reduce the risk associated with using new technologies for exploration and drilling and to identify new resources. NYSEDA now collaborates with over 50 companies to improve their chances of developing and producing new resources in New York in an environmentally considerate fashion. They have an annual budget of about \$1 million, so it's a small fraction of the overall operating budget of NYSEDA, but important nonetheless. Again, they take their role as a partner. They're not looking at, "How can I, in New York, develop a unique technology?" It's, "What are other jurisdictions doing, either federally or in other countries, and how do we apply that to the rocks, to the basins, to the reservoirs that exist in New York?"

Chart number 13 is the impact of technology. It's to add some information to the snapshots that were provided earlier. This is a study that looked at production and said, "Let's look at this as a total reservoir management. Let's apply some different theories and some dollars and some research." The dark grey is a projected decline. If you do nothing, the reserve in the reservoirs

will eventually decline. But in this study they looked at how they can maximize the withdrawal of the resources. You'll see it has a very significant impact on the resource. That's an example what NYSEDA-like organizations can do: how can we take what we know is going to be a declining resource and make sure we extract everything from the ground?

I have a series of recommendations, starting on page 14.

We recommend that a new agency patterned after NYSEDA be created to manage Ontario's energy policy development, implementation and reporting, presumably under the current Ministry of Energy. But because this is an economic issue as well as an environmental issue, we think there needs to be some bringing of minds together on the overall problem. The OEB, because of their quasi-judicial orientation, I don't believe to be the proper research- and market-oriented agency to do that.

Part of that energy policy should recognize the advantages of indigenous production. The economic value of the resource itself—and we have to remember here that this is primary production; it's up there with fishing, lumber. The more our society produces those raw materials, the richer we all are. They're high-value jobs that we'd love to keep in Ontario. We need to keep the infrastructure in Ontario, and that includes the people. You can't come back 10 or 15 years later and say, "Maybe we should crank this up," because if the people and the businesses who support the producers aren't there, it's a global environment. If they're in Michigan or New York, it's hard to bring them back to Ontario.

There are security-of-supply issues. The more you produce locally, the more likely that you can produce that for the province's requirements.

There's a link between storage and exploration. Because storage happens in depleted oil and gas reservoirs, if you stop exploring, if you stop producing in Ontario, you're essentially limiting the storage capabilities that you'll have in the future.

The last set of recommendations are somewhat interrelated. We highly encourage conservation of energy from the consumer perspective, but also from the producer perspective: reducing the waste and making sure that you're extracting all of the resources you can in an environmentally sustainable manner; making sure that producers and consumers receive accurate market price signals so they're not hiding behind a regulatory framework, so they understand what the full cost will be; and letting the market know what the pace scale, form and path of development should be. But it doesn't mean that government doesn't have a role, and that's why the NYSEDA model, in our mind, works: they are there to encourage, via R&D dollars, via partnering with industry, by partnering with academia, and to make sure the proper investments in research are happening.

One of the big areas of research in the US and in western Canada is CO<sub>2</sub> sequestration. As you reinject natural gas, it makes sense, from a reservoir capacity, to

reinject CO<sub>2</sub>. Ontario's got a lot of CO<sub>2</sub> and it's got a lot of reservoirs, so reinject it. People are doing primary research into something like that.

Also, ensure that the tax and fiscal regimes are competitive. It's a very capital-intensive business and it's a very risky business and a very cyclical business. Anything that can happen to encourage proper investment is a good thing.

1040

In parting, I have a quote from Hubert's Peak: The Impending World Oil Shortage, which is a book that came out last year: "A fossil is the remains of an ancient organism. A fossil fuel is stored solar energy by organisms in ancient times. A major lesson: the source of the world's oil accumulated over hundreds of millions of years; most of the world's oil has been discovered in my lifetime .... in a sense, fossil fuels are a one-time gift that lifted us up from subsistence agriculture and eventually should lead us to a future based on renewable resources."

**The Chair:** Thank you very much. We've got approximately a minute and a half per caucus, beginning with Mr Ouellette.

**Mr Ouellette:** Thanks very much for your presentation. According to Maureen Kempston Darks—Mr O'Toole and I were at a meeting with Maureen—in order for corporations like General Motors to produce far-less-polluting vehicles, she specifically stated that they need better fuels coming in. The sulphur content was one of the keys things. What would the average sulphur content be of the fuels produced in Ontario?

**Mr Fletcher:** It's very sweet, "sweet" meaning having a very low sulphur content. I know there's a presentation later from CPPI and they might be able to better answer that. The crude itself is considered sweet. It does not require any sulphur processing.

**Mr Ouellette:** That's what is produced in Ontario, that's coming out?

**Mr Fletcher:** Correct.

**Mr Ouellette:** There is also a cost in order to reduce that sulphur content for the fuels that come into Ontario, because a lot of it that's coming in is not sweet crude. What would the average cost be per litre, say, to reduce the PPM to—I think they're looking at 50 parts per million.

**Mr Fletcher:** I can't answer that. Our industry essentially supplies the crude to the downstream market and it's at the downstream refineries that they would have that sort of analysis.

**Mr Ouellette:** OK. Mr Hastings had a question.

**The Chair:** We have a little time. Go ahead, Mr Hastings.

**Mr Hastings:** Mr Fletcher, convince me better than your presentation that we need another energy authority. California has about a dozen of them, an energy commission, a public utilities commission, an office of policy research and security, the California Environmental Protection Agency and about six others. What will this one do?

**Mr Fletcher:** I don't personally care if there's another agency created. I think somebody needs to be looking at



energy policy. Whether it's the Ministry of Energy broadening its activity, that's fine with me. I agree, another agency isn't necessarily the answer. It's looking at a sort of like agency and what they do as opposed to a new agency.

**The Chair:** To the official opposition, Mr Parsons.

**Mr Parsons:** Interesting presentation. You seem to give tables that give a pretty fair reflection of future demand and future resources. Here's the question, though, that I get from the constituents: when the gasoline retailer is faced with costs and is forced reluctantly to increase the cost per litre by 10 or 50 cents or something overnight, and then miraculously all the other retailers had that same increase, it makes it amazing to me that not only did the gasoline go up overnight but natural gas, a separate product, also went up.

My constituents say to me, "We'd like to do natural gas, but if we look at last winter, the prices went absolutely crazy. They're now going down, so the costs don't in fact reflect the cost of production and the cost of transmission." The price of natural gas to them reflected what the producer could get out of them. People spent money last winter to convert from natural gas in their house, which is a cleaner fuel, to oil, and now the natural gas prices are down. What do we have to do to give some stability to the consumer to say, "If you want to invest in a natural-gas-powered car or you want your house to be natural gas, we can give you some sense"—I mean, we've got projections here of what the demand will be—"of what the cost will be next month or next year or five years from now"?

**Mr Fletcher:** Traditionally, natural gas and crude prices haven't been linked at all. Crude is a global product. It's set at the global level. Natural gas is a product based on North American supply issues.

**Mr Parsons:** Right.

**Mr Fletcher:** Last year was the great convergence of the three—electricity, natural gas and crude—all escalating but not necessarily because of any direct reason to one another.

I bought natural gas for my house at a rate that I could afford and locked in. I said, "I can afford this. I'm not in the business of being a commodity trader." That's the approach that I took.

**Mr Parsons:** I mean for vehicles, though; for somebody who's going to spend the extra dollars for a natural-gas vehicle.

**The Chair:** Thank you very much. We've run out of our time. We're up at the 20 minutes. Thanks for coming forward and presenting. It's much appreciated.

#### CANADIAN PETROLEUM PRODUCTS INSTITUTE

**The Chair:** Our next presenter is Arunas Pleckaitis. I hope I'm pronouncing that correctly—

**Clerk of the Committee (Ms Tonia Grannum):** No, no. Skip down.

**The Chair:** Down one. Bob Clapp, vice-president, Ontario division, Canadian Petroleum Products Institute. My apologies. I was rushing the morning. Welcome.

**Mr Bob Clapp:** I know you're late.

**The Chair:** It's our fault, not your fault. Please state your name for the sake of Hansard, Mr Clapp, and also your associate who's with you. There's a total of 20 minutes, as I'm sure you're familiar with. Whatever you don't use in your presentation we'll divide between the caucuses equally.

**Mr Clapp:** Thank you very much for giving CPPI the opportunity to be with you this morning. My name is Bob Clapp and I'm vice-president of the Canadian Petroleum Products Institute here in Toronto. My colleagues with me today are Gerry Ertel on my left. He's with Shell from Calgary. Operating my slides will be Gilles Morel. He's from Imperial Oil here in Toronto.

I realize the mandate of this committee is very broad and really covers the whole spectrum of energy. We're going to focus today on the transportation sectors. I think we can bring some value added comments.

The next chart—very quickly I've met with most of you before—shows the member companies of CPPI. In Ontario, we represent all of the refiners and our members sell about 85% of the retail gasoline. In Ontario, we have 40% of the refining capacity of Canada.

We look at ourselves as an infrastructure industry, very heavily involved in the transportation sector. In fact, we supply over 98% of the transportation fuels in Canada and in this province. Our members are very heavily involved in the development of fuels of the future, such as clean diesel, clean gasoline and hydrogen, working very closely with the various fuel manufacturers. In addition, we're also into the "alternate" fuel business as we supply propane, natural gas and ethanol blends.

In Ontario, we have a very unique relationship with the petrochemical sector, particularly in the Sarnia area, where we provide feedstocks to all of the petrochemical plants and move streams back and forth to get the maximum value out of a hydrocarbon barrel. And we operate an efficient supply network throughout the province of Ontario to supply petroleum products to our customers.

According to reports released by the Ministry of the Environment, air quality in Ontario has been steadily improving over the past 25 years with respect to most measured parameters. A significant reduction in transportation emissions since 1975 can take credit for much of the improved air quality we enjoy today, but there is still a lot of room for improvement.

Today, there are two dominant policy issues that we're all grappling with. Smog is something that we deal with in Ontario, and particularly in southern Ontario, regularly and it is an immediate challenge for us. In the longer term, we will have to deal with the issue of global climate change. These issues are very different and can have very different solutions. For example, as we'll see later, current fuel and engine technology changes are going to address smog issues but not greenhouse gas and climate change.

When you look at the public, the public really is on the perimeter of these. We're gradually getting public engagement, but that's an area that we really have to work on, to get the public engaged and realizing that they have a role to play in dealing with this.

There's a lot of rhetoric out there today on climate change as we head into a very critical time period and try to understand the full implications of ratification. President Bush came out recently with his plan and I think in Canada, and particularly in Ontario, we need to understand the implications of that and how that may affect Ontario and Canada. But the policy today has been focusing on smog and I'd like to deal with that as we look ahead.

What is being done with respect to smog? Transportation emission programs are all aimed at reducing emissions that lead to smog formation. We're looking at reductions in NO<sub>x</sub>, SO<sub>x</sub>, volatile organics and particulate matter. Regulatory programs are presently underway with both the auto manufacturers and the fuel suppliers that will lead to very significant reductions in tailpipe emissions.

In 2001, low-emission vehicles were introduced, and we will see in 2004 the next level of vehicles, called tier 2 vehicles, along with low-sulphur gasolines. These will result in very significant reductions. In 2004, diesel vehicle NO<sub>x</sub> emissions will be reduced by 50%, and in 2007 we're going to see new diesel engines and low-sulphur diesel that will result in further reductions. In order to achieve these reductions, the Ontario refiners will be investing over \$1 billion over the next four years.

1050

Now let's look at the results. The results are indeed impressive. All emissions are down by 70% to 90% from today's levels. The key smog precursors—and those are NO<sub>x</sub>, nitrogen oxides, particulate matter and sulphur oxides—are down by 87% to 90%. These results reflect the emissions of all on-road emissions from motorcycles up to and including 18-wheelers. These modelled emission forecasts were performed under contract for Environment Canada and represent the most sophisticated modelling and forecast tools available in Canada today. What is most impressive is that all emissions are being reduced at the same time. In cars, a reduction in volatile organics and carbon monoxide usually tends to increase NO<sub>x</sub>, while in trucks a decrease in NO<sub>x</sub> emissions tends to increase particulate matter. But that is not the case with the technology that's being produced. They're all going down.

I'd like to add a couple of charts that really enhance this, because this is very important to understand where we're heading with what we know today. This chart shows the assumptions that are built into it. I'm not going into all of the details. If we want to, I can provide that. The underpinning here is that both the number of vehicles and the vehicle kilometres travelled show a steady increase, just as they have over the past 50 years. It reflects not only the population growth but also how important transportation is to economic growth and how

important mobility is to the citizens of Ontario, both for work and pleasure. So we're seeing growth in the vehicles. This reflects the vehicle turnover, something that in the past a lot of the models have not shown. This is trying to represent what we know going forward.

I've included one chart here and it's for NO<sub>x</sub>. NO<sub>x</sub>, from our perspective, is one of the toughest pollutants to deal with, and I think most of the industry would say that. In all cases we looked at, we see a significant decline in emissions. The tier 2 gasoline vehicles will reduce NO<sub>x</sub> emissions by about 70% in cars and light-duty trucks. Heavy-duty diesel truck emissions standards were changed in the late 1990s. They're going to be reduced again in 2004. In 2007 we will see a further change when trucks will be equipped with exhaust after-treatment devices similar to the catalytic converters that we now have on cars. We will see also the low-sulphur diesel going down to 15 parts per million at that time.

An interesting policy consideration here is how one would accelerate the decrease, in fact move that curve over to the left. The way to do that is to accelerate the fleet turnover, and policies aimed at enhanced vehicle scrappage moving quicker would move that curve to the left and achieve these kinds of reductions much more quickly. That's something to consider.

What are the short-term implications of this technology that we now see in place? With the evidence shown on the previous three charts, we can expect to see, with the new vehicles and fuels that are now on their way, very significant reductions in smog precursors. While at one time cars and trucks were responsible for over half of the urban area emissions, it is expected to drop to less than 10% over the next 20 years.

Let me say a few words about alternative fuels. As I have noted here, they are not the panacea that many would lead you to believe. Today, propane and compressed natural gas vehicles are about 99% of this very small market. The small market for alternate fuels is about 2% of the total. Today there are about 225,000 vehicles in Canada that operate on these two fuels. As I've just said, the conventional fuel and engine combination is significantly raising the bar for alternate fuels to compete against, and they are having difficulty, as we go forward, participating in the market. I think while I just came in you were talking about Drive Clean programs. Our information says that based on BC AirCare and our own Drive Clean program, 95% of the propane and CNG vehicles fail their emissions tests at a rate two to three times higher than those of equivalent gasoline and diesel engines.

A couple of comments about supply: propane supply is rather limited. It's not a major product for many petroleum operations and has been focused largely on heating in remote areas. Natural gas, on the other hand, is in relatively plentiful supply. But in a broad energy picture, the most effective use is for stationary sources to back out coal or heavy fuel oil, and there are still plenty of those opportunities around. The replacement of coal with compressed natural gas for power generation is 10



to 16 times more effective at reducing greenhouse gas emissions than replacing gasoline with compressed natural gas.

A few more comments on alternate fuels: we do not see the demand for them growing. In fact, we believe the demand has been declining and we as fuel suppliers have been seeing it. Why is the demand low? There are a number of factors, but most have to do with real or perceived customer perceptions such as reliability, safety, performance, model selection, convenience, cost/pay-back, used car value and range, and they tend to cost \$3,000 to \$8,000 more per vehicle.

There are some markets where alternate-fuelled vehicles can be suitable, like fleets, but it doesn't always work that way. I have a quote from the manager of vehicle engineering for the TTC: "Natural gas buses are high-maintenance, high-cost and offer no environmental advantage over some clean-emission technologies that are rapidly emerging." As we all know, alternate fuels are now tax-exempt and require these tax exemptions to operate in the marketplace, and many of them cannot be commercially acceptable without these.

Let me move to climate change and look at some of the considerations here. We've seen that the outlook for smog precursors is very positive. They're going to go down very substantially over the next 10 to 15 years. The same cannot be said for global climate change from the perspective of transportation. It's a kind of good-news, bad-news story. The good news: in the production of the fuels, refiners have dramatically reduced the energy that goes into fuel production since 1990. The reduction averages between 1.5% to 2% per year, and as a consequence the greenhouse gas emissions from refiners in 2000 were less than they were in 1990. However, the vehicle fleet that we have on the road today is the least efficient in the past 20 years. Without changes to fuel efficiency or kilometres travelled, greenhouse gas emissions from the transportation sector will increase between 30% to 40% from 1990 to 2010.

Let me show that with a chart that I think shows that very well. The vehicle manufacturers have done an excellent job in responding to the market demand for the larger, more versatile and safer vehicles and for lower-emission vehicles, as shown on the left. Emissions have come down dramatically, and I would say largely due to the changes in the engines, complemented by the changes in the fuels.

The middle chart shows fuel economy. In the mid-1980s the fuel economy of cars and trucks increased about 50%, from 13 miles per gallon to 27 miles per gallon. Since that time there has been basically no change at all in the corporate average fuel economy for cars or trucks. What has changed is the fleet mix, and that's shown on the right chart. There has been a very significant shift from cars to minivans, pickups and SUVs, and all of those are classed as light trucks. To look at the effect on fuel economy, if I go back to the middle chart again, we see that the average has been decreasing for about the last three or four years. So it's really fleet mix that has done it.

What can we do about that? We must move fuel efficiency higher on the priority list. The current speculation is that with technologies we are aware of today, we can achieve a 50% improvement in the miles per gallon. We think we can go from 27 miles per gallon for cars and 20 miles per gallon for trucks up to a fleet average of about 40 with what we know today. This will come about through a number of things that include lighter-weight vehicles, better gearboxes and higher-tech tires, and there are about eight or 10 other technologies that we know of today that the automakers are putting in and will lead us there.

#### 1100

Another route to follow is the increased use of diesel engines in the light-duty truck sector to take advantage of the diesel engine's inherent greater efficiency over the gasoline engine. This is certainly taking place in Europe, and I think you're well aware of that. In fact, there are many more passenger cars with diesel engines in Europe than there are in North America.

A growing number of experts in the field of transportation technology see a three-step path forward. First, we see significant improvements in the existing internal combustion engine, like direct injection. The next step takes us to increased penetration of hybrid vehicles into the market with improved battery technology. The third step would be a transition to the liquid fuel cell that would eventually give way to the hydrogen-powered fuel cell. What is encouraging is that most of this can take place by consumer choice, and there will be plenty of choice in the marketplace and a free market economy to drive which one will be the winner.

This chart shows what you might expect from these new technologies that are coming forward. All of these technologies you can see offer very significant energy improvements, ranging from 15% to as high as possibly 100%. Direct-injection vehicles will still require sophisticated exhaust after-treatment to reduce NO<sub>x</sub> emissions. Low-sulphur gasoline will be required by this technology and the technology is being put in place as we speak to achieve that.

Hybrids like the Toyota Prius and the Honda Insight will be joined by others like SUV hybrids. Technology is evolving, and regenerative braking systems can now effectively capture the energy used in braking. Improved battery efficiency is a critical component of the success, and the prices are eventually going to come down for these cars.

The expectation is that fuel cells will first develop as a stationary source of power, particularly in remote locations, and then evolve to a transportation power source. Natural Resources Canada is leading a group of Canadian vehicle, engine and fuel manufacturers to focus on the development of the Canadian fuel cell. CPPI is a full participant in the process, looking at technologies, the distribution system and the like.

What will the fuel choices be? We feel that established alternate fuels like compressed natural gas and propane will likely be limited to niche fleet applications in urban

markets, as I described earlier. Their advantage is rapidly disappearing as far as emission reductions are concerned and the whole technology is really bypassing them.

Vehicle manufacturers and fuel producers are jointly working on engine fuel combinations and screening the many alternatives that they face to focus on where they think the industries will eventually go. The evolving transportation technologies will determine what engine and fuel combination best meets the consumer's needs and the environmental goals. It will be difficult for those outside the system really to pick the ultimate winners. The market has shown in the past that it is the most efficient mechanism to deal with such choices.

Let me sum up with a few conclusions and observations and hopefully leave a few minutes for questions.

With the regulated targets set for the production of cleaner vehicles and fuels, the focus on policy-makers should perhaps shift to look at other areas like enhanced inspection and maintenance programs to ensure that the fleet on the road is operating at optimum performance.

We should also perhaps look at how to accelerate vehicle fleet turnover to take advantage of the new vehicles that are coming on to the market with much lower emissions than those that are on the road today. Industry in North America—and, I would add, in Europe—is spending literally billions of dollars to develop technologies that will ultimately replace the internal combustion engine. The industry I represent is a full partner in all of those processes. We believe that clean petroleum fuels will continue to be the dominant energy source for transportation for the foreseeable future and that the conventional alternate fuels we tend to talk about are not a panacea to what we face.

We're going to see choice. I think we're already seeing a number of choices because there are hybrids on the market today. Those choices are going to expand as we go on in time and evolve to a whole new system of transportation in the next 15 to 20 years.

I have one more minute. I'm going to throw up one chart. It's almost like a gee-whiz chart, but it's kind of an interesting piece of work that was done by Shell International. I borrowed it and I thank Gerry and his organization for this.

They looked at various energy supply scenarios between now and 2060. These scenarios are premised on very different policy considerations on a variety of these in economic environments. The study looked back over 140 years to try to understand how energy supply has evolved and to see what we can learn and apply to future energy supply forecasts. These scenarios are not unlike the scenarios that are developed by other energy producers and governments. In all cases, there must be an evolution away from energy sources that have a finite supply. The transition from wood to coal to oil is now history. Renewables are set to take the stage in the next 50 years. Oil did not displace coal overnight. It was almost 40 years, between 1860 and 1920, until the full potential of oil resources was recognized and tapped into, and then it grew from there. Renewables are likely to take a similar time frame in order to evolve.

For these reasons, a number of the oil companies that I represent, and other energy companies, are investing heavily in renewables like hydrogen, wind power, solar and other energy options. These sources, although not presently economically feasible, will be as we go into the future and technology develops to put these into the marketplace.

Thank you for allowing us the time. I'm certainly open for any questions and I will direct the technical ones.

**The Chair:** Unfortunately, we're at 20 minutes, 30 seconds. Thank you very much for your presentation. We appreciate your coming forward and the input into our select committee.

**Mr James J. Bradley (St Catharines):** We all had good questions, too.

**The Chair:** Absolutely.

**Mr Clapp:** I'm glad I got to the one about gasoline pricing because John and I dealt with that for an extended period of time.

**The Chair:** We'll save the grilling that might have occurred.

#### ENBRIDGE

**The Chair:** The next presentation is from Enbridge, Arunas Pleckaitis, vice-president of Enbridge Consumers Gas. Please come forward, and any others with you in your delegation may join you. Please state your names for the sake of Hansard. You have a total of 20 minutes. Following your presentation, if there's time left over, we'll divide it between the two caucuses.

**Mr Arunas Pleckaitis:** My name is Arunas Pleckaitis. I'm the vice-president of opportunity and development with Consumers Gas and I also serve as president of Enbridge Gas New Brunswick, a new utility that we started up in New Brunswick about two years ago. With me today is Chris Gates, our manager of sustainable energy within Consumers Gas.

The first thing I'd like to do is commend the committee for its interim report and also to reiterate Enbridge's commitment and support of the public policy-making process that is being used to develop the committee's recommendations. I also want to thank the committee for providing us with this opportunity to share further thoughts with you with respect to our views on sustainable energy development.

This slide summarizes the scope of Enbridge's business operations around the world. As many of you know, we have extensive energy investments in Ontario, elsewhere in Canada, the United States, South America and now in Europe. While I don't intend to go through the slide in detail, it's important for the select committee to know that we are a leader in energy delivery in North America and we have a long-term strategic commitment to be a major provider of energy services in the province of Ontario.

Enbridge is also a very strong supporter of environmental initiatives. This slide provides a sample of some of the local environmental partnerships that we continue



to be involved in. On a national basis, we have been recognized for our leadership in the climate change voluntary challenge and registry program and also for our extensive demand-side management programs. In fact, we are very proudly the recipient of the 2001 Financial Times Global Energy Award for best environmental practice.

Enbridge's commitment to the environment goes beyond traditional natural gas applications and technologies. Through our pathfinder strategy, we have already committed over \$45 million in next-generation fuel technologies. This includes an alliance with Global Thermoelectric designed to fund the technological development and commercialization of natural-gas-powered fuel cells. It also includes a strategic partnership with Suncor Energy to create SunBridge, a major Saskatchewan wind farm project. This project will increase Canada's inventory of power from wind by approximately 10%.

1110

Last August we spoke to this committee about the important role of natural gas and the promising potential of distributed energy in Ontario's energy future. Because natural gas and distributed energy can provide immediate as well as long-term environmental benefits, we strongly encourage this committee to endorse both. In our view, natural gas and distributed energy in combination can help us successfully bridge to a renewable energy future.

As a reminder, by "distributed energy" we mean electricity or other useful products such as heating or cooling that can be generated near or in close proximity to the end user's site. It's a very different approach from our traditional use of low-efficiency, large-scale central power plants where electricity must travel a significant distance to the end user. Distributed energy technologies and applications range from medium-sized reciprocating engines and gas turbines used for cogeneration facilities in hospitals and industrial plants to small-scale fuel cells designed for individual homes.

Let me summarize the principal advantages of distributed energy. First of all are the significant environmental benefits. Distributed energy is able to meet a customer's heating, cooling and electrical power needs while increasing overall energy efficiency. This in turn reduces overall energy consumption and lowers emissions levels.

Distributed energy also has direct economic benefits that include: (1) creating a more stable and competitive wholesale market for electricity by increasing the number of market participants; (2) improving power reliability and quality by adding diversity of supply; and (3) creating substantial new spin-off opportunities in research and development, manufacturing and in the service industries. Some distributed energy technologies, like fuel cells, are still being developed for commercialization, but others are available today. Let me provide you with some examples of what is currently going on in the distributed energy marketplace.

Markham District Energy in Ontario recently installed a 3.3-megawatt cogeneration and district heating and

cooling system in a new business park. The system generates its electrical output from a natural gas reciprocating engine and that electricity is fed directly into the Markham Hydro grid. Combined cooling, heating and power units such as were used in this project can obtain efficiency ratings of 80% or more because energy is generated close to the user and not lost in transportation. This efficiency compares to traditional large-scale central plants with efficiencies in the 35% to 40% range.

In addition to the Enbridge investments in fuel cells, Enbridge Consumers Gas is also supporting multiple demonstration projects, and I've included on this slide a list of some of those projects that we're involved in. Let me just identify two examples specifically: a 550-kilowatt natural gas reciprocating cogeneration unit that provides electrical power and space heating for a greenhouse in St Catharines; we also helped pilot a 250-kilowatt reciprocating engine generator that augments electrical power and heating in a public swimming pool facility in Etobicoke.

The number of these demonstration projects is growing, and as they continue we continue to have an increasing number of participants that we work with in all sectors in our efforts to advance the development and introduction of distributed energy. But we are not alone. Elsewhere in the world a tremendous number of distributed energy projects are underway. For example, new microturbine technologies being introduced in the United States and the UK offer many benefits, including low emissions, low operating costs, simple and quiet operation, and relatively easy integration with other building systems. As a result of this technology, in New York state a plastics manufacturer needing high-quality power has installed 25 microturbines that generate a combined 750 kilowatts. This plan now operates completely off the grid, and one benefit of this approach is that if one microturbine goes down, the others can continue to operate without interrupting service.

In another example, NiSource, a major utility in the United States, has installed and successfully demonstrated the application of microturbines in combination with rooftop heating, ventilating and air conditioning units to provide full-time electricity, heating and cooling for a major drugstore chain. As you can see, other jurisdictions are also looking to distributed energy as part of their energy future.

Our presentation to the committee in August touched on some things that are needed to promote and accelerate distributed energy in Ontario. These included supportive market rules and regulations, a fair and flexible emissions reduction trading system, and the creation of demonstration projects. I'm here to build on that presentation and, in so doing, respond to the interim report's request for specific recommendations.

In the rest of my presentation I'll focus on three areas related to distributed energy where government action is required. These three recommendations are: (1) asking this committee to help ensure that a level playing field for emissions and emissions trading is established,

(2) ensuring that natural gas is part of Ontario's energy solution, and (3) ensuring a straightforward grid interconnection regime.

Let's first look at emissions reduction trading and the need for a fair and level playing field. The Ontario emissions trading regulation that I have identified here, and supporting code, came into effect in December 2001. Enbridge supports the intent of the regulation. However, in order to establish a level playing field, all emitters should do their fair share to reduce emissions. We do not believe the emissions caps or allowances identified in that regulation are aggressive enough to ensure compliance with the 1991 Canada-US Air Quality Agreement or the acid rain strategy endorsed by federal, provincial and territorial governments in 1998. To address this issue, we recommend that this regulation be amended to accelerate electricity sector emissions reductions.

Second, we also recommend prohibiting any electricity sector emitter from acquiring emissions credits from uncapped sectors. In other words, allowances should only come from within the capped electricity sector itself.

These changes would accomplish four things: (1) they would reward emitters that do not exceed allowances, (2) they would force those in the electricity power sector to aggressively reduce emissions, (3) they would send the right price signals to the marketplace and (4) they would help achieve the broader environmental and air quality improvements needed.

We respectfully recommend that this committee request that the province's emissions trading regulations be amended to remove these barriers to distributed energy and other renewable forms of energy.

Our second recommendation is that your final report clearly recognize and endorse natural gas as part of the solution. As this slide shows, natural gas can provide significant immediate gains today in terms of emission reductions and improved air quality compared to other widely available energy sources. This slide shows a graph comparing natural gas and coal-fired generation. You can see that it states that  $\text{NO}_x$  and  $\text{SO}_x$  reductions using natural gas are in the 80% to 90% range, and  $\text{CO}_2$  reduction is in the 50% to 60% range. As a result, natural gas should be viewed as an ideal fuel not only today but also into the foreseeable future.

In addition to its environmental attributes, natural gas is again, as this slide shows, very cost-efficient when compared to alternative fuels. This slide shows a comparison for a residential customer, and you can see that compared to natural gas, electricity is 130% more expensive and oil is about 23% more expensive today.

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Finally, with respect to natural gas, there are significant domestic reserves of natural gas that will be available to support the needs into the foreseeable future. PIRA Energy Group forecasts that North American natural gas supplies are expected to grow more than 20% over the next 10 years. Furthermore, there are ample pipeline transportation capacity corridors and pipeline facilities available to supply the Ontario marketplace.

Our final recommendation is that we need a system in place that makes it possible for smaller distributed generation units to cost-effectively connect to the electrical grid. It is important to note that this is not just a physical interconnection issue. While interconnection guidelines currently exist, more guidance is required. Furthermore, many municipal electric utilities are not prepared for distributed energy or generation connection requests. Some do not have standard procedures established, and many do not have the resources available to develop their own procedures and standards. The government must support the MEUs with further guidance and specific direction on implementation. A clear, straightforward, standard process, along with a procedural policy for accessing the grid, is key to opening the marketplace to the benefits of distributed energy. Uncertainty and red tape will make it more difficult for distributed energy successfully to become a part of the Ontario energy future.

Continuing with this recommendation, MEUs must have uniform, descriptive technical standards for the interconnection of all sizes and types of distributed energy technologies. Furthermore, these standards must be integrated with other North American efforts. Specific codes must be established to provide clear guidance on procedures to ensure that requests from generator connections are processed quickly and fairly for all stakeholders: customers, retailers, distributors, transmitters and generators alike. And fees for interconnection must be standardized to fairly reflect system costs and system benefits. Furthermore, because the current regulatory environment provides little incentive to the electrical utilities to encourage distributed energy from taking hold, it is imperative that a standard policy for net metering be established that would allow for the open buying and selling of power through the grid.

Finally, with respect to this specific recommendation, there must be a mechanism to resolve issues related to both regulation and standards. At Enbridge Consumers Gas we have found the Ontario Energy Board to be an effective forum for resolving these issues.

In closing, I would like to say that this committee has a unique opportunity to promote distributed energy and its associated environmental and financial benefits, and to help establish Ontario as a North American leader in this area. By working to ensure that our key three recommendations are in place, the provincial government can make significant headway in supporting the development of environmentally friendly energy sources in Ontario.

Thank you for your attention. I'd be glad to answer any questions in the time remaining.

**The Chair:** We're down to approximately a minute and a half. I'll give that to the official opposition on this round and match that up for the government side on another time.

**Mr Bradley:** There are a hundred questions one could ask in that short period of time, but I'm going to be very specific. You recommend closing the coal-fired plants and presumably replacing them with gas-fired electrical



generating stations. When you are doing so on a plant such as the Lakeview Generating Station, what is the advantage of completely putting in new equipment to serve natural gas as opposed to simply converting the equipment that is in the existing plant at the present time?

**Mr Pleckaitis:** Converting it to a more efficient technology; for example, putting in scrubbers?

**Mr Bradley:** Yes.

**Mr Pleckaitis:** First of all, I didn't make, and I don't think my presentation was intended to make, a specific recommendation that the coal plants be converted. What I did was point out that there are clearly environmental advantages to burning natural gas versus coal in plants such as the existing plants.

**Mr Bradley:** But there are some who would like to use the old equipment, say, in the Lakeview Generating Station, as opposed to putting in all new equipment; in other words, do it on the cheap, as usual. There are certain people who want to do it on the cheap. What would be the advantage of putting all new equipment in rather than using the old boilers and stuff that are already in the Lakeview plant for coal purposes?

**Mr Pleckaitis:** I can't comment on the specific economics of completely retrofitting with new equipment existing coal-fired plants with natural gas as compared to taking the existing coal-fired equipment and putting scrubbers on or other enhancements on to clean up the emissions.

My personal view is that at the end of the day it's the emissions and the cost of the emissions that come out of those stacks that should be the important criteria that are measured. How it is done from a government policy perspective I think should be somewhat irrelevant if it can be done in one means or another for an equal cost.

The specific thrust of my presentation is I believe at some point in time those existing power plants will be cleaned up. It's a question of when. The specific thrust of my recommendation is to point out again to this committee the opportunity that is presented by a brand new form of technology and application, and that's distributed energy. We believe that having a much broader sector of our economy involved in generating and producing their own electricity and their own heating at their point of use is a much more efficient and effective way to address the sustainable energy issue that we are dealing with in this province, and that's the key thrust. If converting a power plant along the way makes economic sense and is in the cards for this province, we will support that and we will do everything possible to do that at the same time.

**The Chair:** Thank you very much for your presentation. We appreciate you coming forward.

**Mr John O'Toole (Durham):** Mr Chair, if I may, through you to the clerk, ask Enbridge to submit future gas prices or their projections or forecasts in terms of natural gas prices.

**The Chair:** Certainly.

**Mr O'Toole:** That's the whole equation for the future prices.

**The Chair:** That request will be coming from the clerk.

Thank you very much for coming forward. We appreciate your presentation.

**Mr Pleckaitis:** Thank you, Mr Chairman and committee. We will be leaving behind some additional material of interconnection issues that the committee may find beneficial as they're reviewing their report.

**The Chair:** Thank you.

## LLOYD ALGIE

**The Chair:** Our next presenter is Lloyd Algie. Thank you for coming forward. Please, for the sake of Hansard, state your name. We look forward to your presentation. As an individual, you have a total of 10 minutes to present. Anything left over from when you present we'll divide between the caucuses for questions.

**Mr Lloyd Algie:** I'm retired, so I'm not here to sell anything. I'm just here to talk about what I call load management in systems that exist in all hydro utility systems across Canada. I have spoken in every one of these across Canada when I was in business.

If I could get somebody to put this on top of the screen, just to show you where the loads are and where they were calculated by Hydro about 20 years ago.

I feel very old being here today because I worked on a new invention for Mr Mashinger, who worked for the firm that installed the heating and plumbing in this building. That was when he was 70 years old and I was 24. Now it's reversed; I'm over 70 years old.

What I want to talk to you about today is the idea that I show in this article that's already been passed out. This was installed in 1982 at the corner of Jarvis and Wellesley. I'm holding this brochure right here. In case any of you want it, I have extra copies. This building—we couldn't get thermal storage. I don't know if you understand what thermal storage is. We make big steel tanks, store energy at 250 to 280 degrees under 50 pounds of pressure and use a heat exchanger. We did the Westin Harbour Castle hotel downtown like this. We did 20 other systems in downtown Toronto. We did 85 coast to coast in Canada. I started up most of them.

But in this case we couldn't get any thermal storage, except that we could utilize the idea of electric boilers that are already in the building. The code in Ontario, ASME, says that you don't have to operate 130 water for all your plumbing fixtures all over the building. You can alternate by making tandem boiler systems like on this one shot here with the three-way valve and a flat-plate heat exchanger. We increase the temperature of the water from 130 up to 190 and we triple the BTUs in the storage side of the capacity. By doing that, we could then go into off-demand. Now, you all understand off-demand meters because if you're in business you have a meter for your electricity and you have an off-demand meter which tells you what you did in the last 30 days.

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By utilizing this idea, we save \$20,000 a year by having the demand concept on the clocks that would then through the week—most apartment houses in Canada

work in the same manner in that they have a peak hour in the morning and a peak hour at night. But on Saturdays and Sundays the people have a separate peak area around 11 to 2 o'clock when they do all their clothes washing and dishwashing in some cases. That sort of thing peaks on Saturday and Sunday, so you have to have that peak vary on those two days. By doing this, we take the building off demand. In some cases, demand costs could operate anywhere back in those days from \$80 to \$150 a kilowatt demand by the utility.

Here we're showing the graph that Hydro—and I worked with Ontario Hydro on this. They were trying to fill the valley time, was the concept. In England and in France there is no valley time. We had people sit in on our meetings. I was the original director for Canada for three years with the American Society of Heating, Refrigerating and Air Conditioning Engineers, which puts out the big engineering manuals for all consulting engineers for North America. What we found out was that they just have what they call topping off, and it's a little flat. What we wanted to try to do was get that same idea here. As you can see, by 1997 we were trying to go for 12,300 megawatts in the valley time. Last year, if you heard the news, in the summertime we hit 25,000 megawatts on Ontario at the peak. So you can see we're way ahead. We're up to 2007 already in the original scheme of things.

Also, when I was doing this, I volunteered to work with Walter Chick of the Ministry of Energy of the province and with BOMA, Building Owners and Managers Association. We took them from an infancy group of fellows, 25 in the city of Toronto, and we trained them in Honeywell to understand heating and air conditioning products and how they interface with each other. By doing this, we saved in five years \$25 million worth of energy, just by good housekeeping and by utilizing some of these concepts and ideas.

As you can see here, the Plaza 100 building at Jarvis and Wellesley, we tripled the source of the BTUs by increasing the hot water storage temperature. Putting a through-way valve with the flat-plate heat exchanger, we still have the same temperature of water going through the building, through the 314 apartments. By doing this, we saved roughly in the very first year \$19,000 or \$20,000. The cost was one-year payback. There was a meeting here about three years ago with the group, and I went to see the lady who runs this for Cadillac-Fairview. She said, "No, everything's still the same. We took a 640-kilowatt electric element out of one of the boilers and put a flat-plate heat exchanger. I still have that as a spare." That was 20 years ago.

If every utility in large cities could utilize this concept, this is where you could save. You don't save kilowatt hours, but you rearrange it so it doesn't come on the peak of the building. We save the owner that money and therefore you're doing a service to the people who own the building. What we're trying to do is fill that valley time that you see up there at the top one right now by doing this. Therefore, I think that's all I need to say on that one.

The other one: I happened to teach for CIDA down in the Caribbean for the first application of basic refrigeration, and at the same time it came to me that these are energy islands to sustain the planet.

I'm showing a concept here, very low-cost, \$400 to \$450 per house. You could do this for your cottage if you want to test it out. You take two-inch black plastic pipe and put it on the south side of your roof. You put in a 12-volt DC bilge pump and a control and then, when it hits 140 degrees, you fill up that brick quadrant there with cement blocks with a rubber liner. We use a little solar idea from that which heats up the two-inch black pipe, believe it or not. If you want to test it, put a 10-foot piece on your roof sometime and see how hot it gets. We just run the bilge pump with the little solar panel and this will store hot water for small residences.

We use it in ships in Canada. If any of you have been to Newfoundland, you get the ship coming back from Port aux Basques to North Sydney and you see another big truck getting hosed down on the water. We supplied all the thermal storage for that ship, which takes the 160-degree water and hoses down that 18-wheeler, because they have potato plate in Newfoundland but they don't have it in PEI. So therefore, when the truck comes ashore in North Sydney, it can't have any germs on it in the way of potato problems. So that's what they utilize that for on that one.

I also happen to live in Belleville now. I've been retired there for nine years. I notice there are three turnstiles of systems making energy, and since we have a very warm spring, the water still runs over those and still generates electricity. So I'm suggesting that rather than having the two different hydro systems that might come about on May 1, who gets the energy off the English River and off the Trent River from this point of view? I'm saying that with this concept of thermal storage, we could heat, off peak, the cities of Trenton, Frankford and Belleville just from those three turbines that are always turning. Instead of putting it into a grid, which nobody knows yet who is going to own in the end, let's supply the people who live on the Trent River with this. I'm showing that concept.

Or you could use windmills. I happened to be called in to size up the arc for PEI but I wasn't successful as far as the price was concerned. But the same thing could be done with wind. You can't store the sun or electricity, but you can store the energy that both produce. This is what we're trying to get at here to make our energy last longer.

As I say, we also did another study for the ministry of the Don Jail, and this is the breakdown if anybody wants to look at it. We did this back in 1988, and it showed that we could save roughly \$253,000 in energy by not having to use the steam from the hospital just north of it, and in that case by going on natural gas for all your domestic hot water.

Also, what's happened in the last few years is that we've all sized our buildings for smoking. We always did this in ash rain and any other people who had—now that you've reduced the smoking, all our fans are oversized in



those large buildings. I used to tell the Wal-Mart store, "You're going to get sickness in the first 60 days when you open up your new store." He said, "How did you know all the people were checking out?" I said, "Because you've got outgassing of all the stuff. Your chipboards on your counters and all those things are outgassing and people can't work in that atmosphere." You've got to have the ventilation open a little higher at that time of the year, try to do it, hopefully, in September or October.

But the thing is, if you can control this—and we do this in Terminal 3. All the fans are controlled by carbon dioxide. We all breathe out carbon dioxide. That's what came into Terminal 3 at Pearson. All the fans are controlled by the amount of air you breathe in and the number of humans who are in that building breathing out CO<sub>2</sub>. So it's all controlled in that vein.

We can do this with fans by looking over older buildings, reducing the fan capacity, because there is no more smoking in there, and that way you save, again, more energy.

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**The Chair:** I hate to interrupt but the time is up.

**Mr Algie:** That's OK. I'm finished.

**The Chair:** An excellent presentation. Do you want to take 30 seconds just to round out?

**Mr Algie:** No. I've talked about off-peak. Oh, yes, we did Nova Scotia Light and Power, which was a space heating concept, and we saved 2,000 kilowatts right off the peak in their building in downtown Halifax. So that was one of the other buildings that was a retrofit. We've done it with heat pump systems. When you do it with heat pumps, you get 70-degree water circulating the building. Now you can heat and cool with 70-degree water, you don't need any insulation, and you can really save a lot of money by utilizing a water-to-air heat pump versus the other types of systems in a system with the thermal storage.

**The Chair:** Thank you very much for your thoughts and for coming forward. One of the big interests of the committee is energy conservation and how to deal with that, and you've certainly brought some interesting thoughts forward.

#### BURKHARD WEGNER

**The Chair:** Our next presenter is Burkhard Wegner. You have a total of 10 minutes for your presentation. What is left over we'll divide between the caucuses for questions. For the sake of Hansard, please state your name, and the time is yours.

**Mr Burkhard Wegner:** My name is Burkhard Wegner and I'd just like to thank you for the opportunity to make this presentation.

First, I'd like to say I've had the opportunity to go through a few of the Hansard minutes from past meetings and take a quick look at the interim report, and I'd like to congratulate this committee and all the individuals, companies, government agencies and organizations that

have come forward to invest in a cleaner future for Ontario.

I trust I gave each presentation equal consideration, but I want to mention that I do not represent a company here and ask that you focus your attention on the merits of my topic. Unfortunately for you, that means I'm not a professional speaker and I'm probably a little bit nervous today.

My background is as an IT consultant. About seven months ago I read an article on the Internet as to how you can drive your car for free. This led me on a long journey of discovery and environmental awareness and eventually brought me here before you today.

I know you've heard from a wide variety of presenters about a wide variety of solutions. Since the allotted time is kind of short and you've got a lot of the information already, I'm just going to breeze through this presentation at a very quick pace and try to leave a few minutes at the end to clarify or answer any questions.

I believe the biggest reason for this committee's existence is the fact that we're all becoming increasingly aware that we cannot continue with our current fossil fuel activities and still be healthy enough to enjoy life. We cannot continue. The economics, health hazards and global environmental effects associated with pulling fossil fuels out of the ground, burning them and putting the emissions into the atmosphere are all well documented.

Having researched many solutions and read some of the previous presentations, I don't mean to knock or promote any particular technology presented so far. I do think this committee has its work cut out for it, as there are certainly some very good benefits, but also some very real drawbacks to most of the solutions proposed. For example, it's still difficult to heat your entire home solely on solar panels, you can't install an adequate windmill on every rooftop in Toronto and other urban locations, and a number of the other solutions still rely on electricity or fossil fuels.

I think there is also a problem with the public's perception of the cost of energy. On the one hand, myself included, most people complain about the cost of energy, be it electricity, natural gas or gasoline, which mysteriously goes up five cents a litre every Friday. On the other hand, I think a lot of us have no real reference point as to the true value of that energy or how convenient these energy forms are.

To illustrate this point, let's take a look at an Olympic athlete who is able to run a four-minute mile. Most of us would not be able to expend or create energy at that rate, and even that same athlete could not continue at that rate for a fifth minute. But for the purposes of this illustration, let's assume that a human being could expend energy at that rate given a 40-hour workweek. If we connect that human being or have that human being running on a treadmill connected to a generator, with zero losses, and we took that electricity and sold it at current market rates, there would be an annual income for that athlete of \$150. If we factor in that bit of education with the environ-

mental and related health costs of fossil fuels, I think people will have a different view of the energy they consume.

Like many others, I believe there is not one single solution to the damage we're doing to the environment. I think it will take education in conjunction with incorporating a wide variety of solutions, each being the lesser of two evils when compared to fossil fuels.

At this time I would just like to repeat the mandate of this committee: to investigate, report and recommend ways of supporting the development and application of environmentally friendly, sustainable alternatives to existing fossil fuel sources. With that goal in mind, I would like to present to you my version of the miracle solution, and that is straight vegetable oil, also known as SVO. Based on efforts and research by myself, but primarily by my colleagues Dan Nagora and David Miskolczi, I would like to describe to you how this fuel is an environmentally friendly, sustainable and easily applicable alternative to fossil fuel.

Our proposal describes a solution that can be implemented almost immediately without changing consumer patterns. Although based on similar consumer practices, we propose to close the carbon cycle and recycle the effluents. I would like to submit that consumers can run their automobiles, generate electricity and create thermal energy to heat their buildings all on SVO. As you've heard already, when oilseeds are pressed, they produce roughly one third oil and two thirds high-protein meal. The meal is used for feed for livestock, and the effluents, manure, can be returned to the fields through the next crop. When SVO is used as a fuel, when they are consumed, the effluents can also be returned and recycled by the next crop. It is very important to note that this is a very real-time, user-pay cycle, by which I mean there are no deferred capital or environmental costs like disposing of radioactive material. So SVO would then be a renewable alternative fuel source.

As most of you know already, in 1900, Rudolf Diesel unveiled his engine, which was designed to run on peanut oil. There are currently several automobiles with diesel engines around the world that run on SVO. These are mainly based on a dual-fuel system, which we believe we have found a way around. We have also identified some furnaces that can be modified to burn SVO for thermal energy production. One of my IT clients has a greenhouse and has already expressed interest in the possibility of testing some of these furnaces in one of their locations.

Another very effective concept is cogeneration, which I believe was introduced by Dr Charles Rhodes of the Atomic Energy Corp. I think it was mentioned earlier today.

Due to time constraints, I'll just summarize by saying that this system realizes three times the potential energy of the fuel versus production of electrical energy alone. I think that answers one of the questions brought up earlier today about the benefit of cogeneration.

The next logical step for us would be to develop a cogeneration facility based on SVO and co-locate them

with large energy consumers like MDUs—multi-dwelling units—universities, hospitals or greenhouses. The electricity produced would be consumed on site and the balance fed into the grid. The hosts of these systems would use the thermal energy produced. Not only would this replace reliance on fossil-fuel-based heating and domestic hot water, but also coal-fired electrical generation facilities, resulting in double the environmental impact.

If I may, I'd like to take you back to the farm illustration one more time. The crops can be grown by a farmer, who can modify his tractor to run on SVO. The seeds are brought to a mill by trucks that can be made to run on SVO. The oil is extracted by equipment, either powered by SVO or electrically from an SVO generator. The refined oil, SVO fuel, is delivered to the consumer, again by trucks that run on SVO. Nowhere in this system do you have to introduce electricity from coal-fired power generation stations or fossil fuels into the process. If at any point during transit, storage or production an accident occurs resulting in a spill, the effects would be manageable as SVO is biodegradable and non-toxic.

I'll leave you to think about the following facts that have already been heard before this committee: the benefits to the farming community of SVO; the benefits of SVO to the economy—not only will you be introducing a new market sector, but the annual import of 850,000 tonnes of soybean meal can be reduced; the reduction of fossil-fuel reliance with renewable chemical energy sources; the need for subsidies for corporations making large capital investments in equipment and processes that benefit the environment and reduce fossil fuel reliance; the development of a safe, renewable, environmentally friendly chemical fuel source. Also, we support continued education for responsible use of energy and creating a fair playing field with respect to the upfront costs of using real-time, user-pay renewable energy sources versus the higher environmental impact fossil fuel alternatives.

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**The Chair:** Thanks very much. We have about a minute and a half left. I'll go to the government side on this occasion. With the short time, who would like to question or respond? Mr Hastings.

**Mr Hastings:** How are we going to get the capital to get your SVO approach going?

**Mr Wegner:** In terms of automobiles, which I don't see as the biggest impact, there is already a \$1,000 rebate for alternative fuel based systems, and that \$1,000 would offset the cost of modifying these vehicles. There have been lots of recommendations to implement cogeneration facilities. With the cost of electricity going up, if you take a cogeneration system to produce heat you almost get electricity for free. That's how the equation works out. So if you go to a building owner—an MDU owner or a hospital—and say, "You're already spending X amount of dollars, be it \$100,000 a year for heat. Now you can put in this equipment and get electricity for free." Those



costs would offset the capital cost of implementing the equipment.

**Mr Hastings:** Have you approached any municipalities, universities, colleges or hospitals? Some of them are always saying to us that they need more money to operate in a whole set of areas. I'm wondering if you found any entrepreneurial souls in that sector.

**Mr Wegner:** So far, the only people who are kind of sitting ringside waiting for the next step—I have the used vegetable oil source supplied from coast to coast from Rothsay, a division of Maple Leaf Foods, which I believe has been mentioned to this committee before, and I have the greenhouse interested in taking a look at experimenting with heating one of their greenhouses with it. I have a meeting that I'm trying to establish with the mayor of Hamilton, and I've mentioned it to one of the largest real estate companies coast to coast in Canada—I think it's number two or number three. We're going to be talking about it shortly—I believe next week—to discuss the merits of looking at a pilot project.

**The Chair:** Thank you very much. I appreciate your presentation, your thoughts and your demonstration.

#### CANADIAN INSTITUTE FOR ENVIRONMENTAL LAW AND POLICY

**The Chair:** The next presentation is Christine Elwell, senior policy and legal analyst with the Canadian Institute for Environmental Law and Policy. Please come forward.

**Ms Christine Elwell:** Thank you, Mr Chair. I'm here with my colleagues Gerry Scott, climate change director for the David Suzuki Foundation; Greg Allen, with Energy Action Council of Toronto; and Ralph Torrie, of Torrie Smith Associates, leading Canadian expert on energy, energy efficiency and reduction technologies, as well as software. We have a full crowd.

**The Chair:** You have every microphone filled. There is a total of 20 minutes set aside for you. What you don't use in your presentation we'll divide equally between the caucuses.

**Ms Elwell:** We would like to keep time for questions. We just came from a press conference where we released a study that we're presenting to you called Green Power Opportunities for Ontario.

In this study we crunch the numbers to show that we could close the coal plants in Ontario with a combination of renewable energy and energy efficiency. In crunching those numbers, however, we recognize that the price for electricity is very important and sensitive for green power. Wind producers are telling us they need about 10 cents per kilowatt hour, and yet when we look at the lay of the land right now, we see price caps and we see subsidies to traditional fuels. Frankly, the renewables can't compete in this atmosphere. So we entreat you: we're looking for an entrepreneurial level playing field so that renewables can actually compete.

We show a combination of energy efficiency of about 20,000 gigawatt hours: about 15,000 gigawatt hours with

wind and about 5,000 with hydro and some biogas, which I'm hoping Greg Allen can speak to from a technical capacity standpoint.

The problem, though, is there are multiple barriers, I'm sure you've heard, to entry for these new technologies. For example, we've got transmission rates for export at \$1 per megawatt hour. Yet if you're wheeling power within the province it's \$4.85. This is a regulatory barrier to green power. We're looking at historic subsidies to coal and nuclear, insurance waivers, these sort of things. Yet the green power industry, which we support, doesn't have these advantages. So we come to you and say we've got the technical capacity but we've got some price barriers and we need the RPS, the renewable portfolio standard, we need demand-side management programs blessed by the Ontario Energy Board, as they've done in the gas sector. We're hearing that the board needs clear political signals. Your committee has got the mandate to speak for Ontario and about our needs for conservation, security of supply and moving into green technologies.

Frankly, we do these green power trade shows every year with IPPSO and we're really finding a lot of interest. But what I'm hearing from industry, large and small, is that they can't buy a turbine in Ontario. They have to import this technology. With our low Canadian dollar, it's killing them. They can't offer green power at a decent price, not only because of historic and current subsidies, but also because we don't have the manufacturing base. There is an emerging \$500-billion global market out there for emission reduction technologies, which I'm hoping Gerry Scott from David Suzuki can put in context for us. Ontario is going to miss the boat in these emerging markets, in these emerging technologies, unless there's a political signal of support for these industries. Why do we need it? Frankly, coal, because of its low price, will dominate in the new open markets. We need some levelling-of-the-playing-field instruments out there so that we can compete, so that we can move Ontario into a green energy economy and build our manufacturing base so that we can take advantage of these opportunities.

I won't go on. You have a full panel of expertise here. Let me introduce first Ralph Torrie, Torrie Smith Associates, a phenomenal ecological economist who crunched our energy efficiency numbers.

**Mr Ralph Torrie:** Good morning, everyone. Time is really short and I was trying to think about how best to use it. I thought that one of the interesting things about the previous two and, to a certain extent, the previous three presentations that struck me as a member of the audience was the entrepreneurial excitement that you could feel underneath the presentations and the technical content of the presentations that you were hearing. It doesn't surprise me because this is quite characteristic of a very large and very important trend that we're seeing in all of the western economies now, which is the development of a whole range of new ways of doing things and new technologies that use not only electricity—that's what we're talking about here today—but all environ-

mental resources much more efficiently than has been the case in the past. We talk about labour productivity all the time and we talk about capital productivity. If you think about energy productivity, and specifically about electricity productivity, there's something quite interesting that comes to the surface. This is the one point or the one argument or finding that I really wanted to drill home today.

I've been testifying at committees like this one now since 1978 and I remember being before Donald MacDonald's committee at one point in the 1980s and making the case that the economy was no longer growing as quickly as the demand for energy, that that was a bandwagon you'd want to be on. Because the more you can improve the energy productivity of your economy, the more output of value that you can get for every barrel of oil and for every kilowatt hour, it seemed clear to me, the stronger your economy is going to be. But the electricity lobby, if I can call it that, at the time—and you may remember this, Mr Bradley—argued that might be true of energy in general but it's not really so true of electricity. It was true in the 1980s that electricity continued to grow at a faster pace than fuels like oil and gas.

I don't know if it's quick and easy to turn this machine on. If it is, there's a set of four quick pictures that I wanted to show that makes this point. I can see we're running into time problems, right?

**The Chair:** Unfortunately, we have to know ahead of time to have it set up ready to go.

**Ms Elwell:** It's in the study; you'll find it there.

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**Mr Torrie:** It's in the study, and it's a simple exercise that we did. We took a look at the demand for electricity in Ontario in 1990 and we took a look at the dollars of output of the Ontario economy in 1990 and we basically divided the dollars of output by the kilowatt hours and got a thing we call electricity productivity; and when it goes up that's a good thing. Then we went forward to 1999 and we multiplied the 1999 output of the Ontario economy by that 1990 ratio just to see how much higher the demand for electricity in this province would have been in 1999 if it had not been for this whole universe of things that are going on that are causing the amount of electricity that we need to produce a dollar of output in this province to go down. What we discovered was that the real demand for electricity in 1999 was about 150,000 gigawatt hours altogether. If it hadn't been for the improvements in energy efficiency in the 1990s it would have been 180,000. So we've had, if you like to think of it this way, 30,000 gigawatt hours. Essentially, it would have required doubling the existing output of our coal-fired power plants, if we had had to provide that electricity instead of getting it in the form of a more electricity-efficient economy. So there is already a trend that is gathering steam.

That amount of electricity is more than all of the new gas, coal, oil and nuclear added together and doubled in the 1990s. That's how big this is. Yet it's happening in

the face of the types of market barriers that Christine has been talking about; it's happening without really being an organized industry, and in this province it's about to have to continue on, if we're not careful, without any kind of policy support.

We're at a juncture, obviously, right now in the electricity sector in this province. For all of the arguments for and against privatization and regulation, it is going to be and is becoming a fact in the province, and it seems to me one of the things that we can lose, if we're not careful, is the ability to encourage development and entrepreneurship and growth in those areas which are clearly the economic winners of the next few decades. This is surely one of them. You saw a little taste of it in the last couple of presentations. This is where we want to be; this is what we have to encourage. I guess that's why I was so happy to come and support the arguments that are being made here today.

This is pretty small potatoes we're left with. We've come all the way from Ontario Hydro to please could we at least have some guaranteed support for investment in the demand side, and please may we at least have some fair conditions for the green power industry before this thing goes completely chaotic on us over the next couple of years. I don't think that you can overemphasize the potential importance, and not only to our environment. We started this analysis because we were concerned that we have to get improved electricity productivity if we're going to have any hope of achieving our environmental objectives, including both our air quality and our greenhouse gas objectives. But what we discovered in the course of doing the work was that not only is this the key to getting these environmental objectives; this future of greatly expanded investment in energy efficiency and renewables is also the economic future that we want. This is the one you want to be with. The future that comes with continuing the way we used to do things, the future that comes with global warming, believe me, that is the economy you do not want, not the one with solar panels and better-insulated buildings and more efficient cars. That's nothing to be afraid of compared to what's coming if we don't do this.

I think we've probably used our collective time. We get enthusiastic about these things because we care, but there's some very solid research underneath this, and I would encourage you to take a look at what we've done, and have your own staff verify it, and you'll see just how important a contribution to the Ontario economy these types of initiatives are now, and must continue to be if we're going to be competitive in the future global marketplace.

**Ms Elwell:** Thank you very much. Greg Allen, Energy Action Council of Toronto, who gave us insights into biogas matters.

**Mr Greg Allen:** Among a variety of projects that I've been involved with, I work in sustainable energy, have all my life, and more recently, looking at larger-scale enterprises in the city of Toronto, I've been involved with the deep-lake water cooling proposition, an engineer



in Toronto who devised the notion that because the bottom of the lake is cold year-round, it could provide the cooling. I added to that proposition the use of potable water being brought onshore at the Toronto Island filtration plant, and heat exchanged to cool the downtown core, and that project is under construction.

The gas proposition is as a result of an emergent problem across our province in terms of the disposition of our solid waste. The majority of the solid waste from our municipalities is organic and can be converted to energy. The prospect of doing so by incineration or other combustion technologies has met with very little public support. On the other hand, the production of methane from anaerobic digestion of the material offers a very high economic attractiveness and a high acceptance by the public for doing so.

The project I'm currently working on for the city of Toronto and for which I have done two studies under the waste diversion office for the province of Ontario consists of the feasibility of converting at this point 200,000 tons of municipal waste and producing about 50 megawatts of power from the generated gas. The compost material that results from this is of a high enough quality for unrestricted usage. It's pathogen-free by the process itself and constitutes a win-win-win in all regards. The cost of the project capital can be readily recovered by the avoided tipping fees and the gas and compost yields of the development.

It's an illustration of the level of ingenuity we need to start to apply which looks at an integrated approach to our energy and a myriad of other environmental critical issues of our times. I would contend that applies to all manner of sectors. The production of methane from agricultural waste would also address the despoliation of our aquifers in the province. The technological and economic opportunities abound. What is missing is an atmosphere and a culture that support and nurture the ingenuity of the people of this province. We need to be providing not only the cultural will to proceed to the 21st century's future in sustainable energy, but also to prepare our young people for the capacity that we need in terms of ingenuity to enact this great transformation.

**Ms Elwell:** Thank you. Gerry Scott, David Suzuki Foundation.

**Mr Gerry Scott:** I'll be very brief. I think we've had pretty much an encapsulation of the best of our story and case, just in reiterating the call and support for the renewable portfolio standard and demand-side management programs as part of your mandate.

I would just want to touch on the issue of climate change, which has been a major focus for the David Suzuki Foundation. While we're very supportive of ratification of Kyoto, with or without that, I think it is an essential conclusion from science today that within years, there will be a requirement—provincially, federally, internationally—for reduction in greenhouse gas emissions. The science is overwhelming. While there are those who would delay action, it is inevitable.

In looking at where Ontario achieves its electricity supply and how it affects the demand that drives the

supply, I would urge you to consider the whole notion of the risks of stranded assets. There are no risks, there are no future carbon liabilities from demand-side management, from having electricity used efficiently. There is no downside on air pollution, climate change, stranded investment. However, that could easily occur if we see the expansion of coal, nuclear and fossil fuel generally.

**1210**

Throughout the world, we are seeing the trends that Ralph and the others have described of efficiency, of new industries growing in what we call the new energy economy. Wind is growing at over 25% per year globally; 12,000 people in Denmark work in the wind industry in well-paying jobs, exporting all over the world. This is coming to a country near you, called the United States, where the wind industry is booming and there are plants going to be built in America to actually manufacture the technology. Those plants should be on our side of the line. So that is one goal that I would urge consideration of as part of the structural changes, including renewable portfolio and demand-side management.

**Ms Elwell:** Just crunching some numbers for you, I'll remind you that according to the federal government and the climate change tables, Ontario needs to reduce its use of electricity from coal by 93,000 gigawatt hours by 2010. Our plan over the course of 10 years could reduce that number by half; it will be down 40,000 gigawatts. So this plan is defensible and it's economic, and we need to do it.

I just wanted to give one other number, and that's on demand-side management. We know that for every dollar we spend on energy efficiency programs we save \$20 to the Ontario population. The gas sector—we've seen this through the energy board—the utilities are making money now providing energy efficiency programs. It's a win-win. Currently, for a \$13-million investment by Enbridge and Consumers Gas it will be saving Ontario ratepayers \$200 million. The payback is just phenomenal. I thought I would add those numbers.

Shall we turn now to some questions? We'd be very happy to flesh out these bare bones.

**The Chair:** We're very close to out of time, but if the committee doesn't object I'll give two minutes to each of the caucuses and go from there. I don't see any objections. To the official opposition, Mr Bradley.

**Mr Bradley:** First of all, I should say, Mr Chairman, I don't often agree with Tories, but Mr Torrie's presentation today was very beneficial.

I'm very intrigued by—and some of us have heard it before as well—your call for demand management because I well remember, as some others will, Ontario Hydro telling us how we had to build all of this capacity, that the demand would be tremendous in the years to come. Of course, that was never proven by fact, even though they had all the nice charts and so on.

By the way, I should also say—I heard you mention Kyoto—that I was, I should tell my Conservative friends, deeply disappointed that the Premier accepted the leadership of Ralph Klein and George Bush and signed on to a

letter calling on the federal government not to sign the Kyoto agreement. That was very disappointing. I just thought I would share that with my colleagues in case they weren't aware of my position on that.

Anyway, would you suggest a couple of ways that we could address the issue of demand management? Some of us have been very interested in that end of it, demand management, conservation.

**Ms Elwell:** That would be a distribution function, which is still a natural monopoly. The OEB sets the rates for distribution. Do it like you did it in the gas sector: require DSM programs for electricity. What they do is they have a lost revenue adjustment mechanism so the utility doesn't lose any money by saving energy. It sets a performance measure, they get an extra incentive. If they're below that measure, they get a penalty. They're never below, they're always above. It didn't bankrupt the place.

Your minister, Jim Wilson, was quoted in the Report on Business recently saying that the signal he's getting from the industry is to not support DSM in Ontario for that sector. Your committee needs to go to cabinet and suggest that a signal be given to the OEB to require DSM projects for the electricity sector. Your constituents save money because of these programs.

**Mr O'Toole:** I do really appreciate in a general sense that it is a paradigm or a cultural mind shift that has to go on here somewhere. Without trying to blow our own horn, I think the government has taken the right step by opening up the market and dealing with the existing monopoly and its inherent cultural inefficiencies. The way I hear it, what was going on culturally wasn't going to change. All of the pieces were put together years ago and they haven't changed, the generation side and the rest of it. Right now, as an elected person, people want cheap power. That's the bottom line.

I have a couple of questions and perhaps at the end you will have time to answer them. I agree completely with looking at renewable portfolio standards. Demand-side management is part of that, learning to conserve, and it's also related to how we price the product. We have been underpricing the product. If you read the papers, people are alarmed that they're going to have to actually pay what it's worth. Do you believe people will actually pay for it or do we need some kind of a renewable portfolio subsidy for wind or water, whatever sustainable energy form? Do you think they'll pay? I don't sense that people will pay.

One last thing, and it's my opportunity to say, you talked about landfill and that the real issue here will be whether or not we go into incineration. Harvesting methane gas, as you said, is important. But shouldn't we consider all options, the most appropriate options? When you look at some of the thermal applications in cement plants etc, they're burning at 1,500 degrees. There may be some things we could actually add to the fuel without adding to the greenhouse gas thing.

**Mr Bradley:** Not PCBs.

**The Chair:** Mr O'Toole, give them a little time to respond.

**Ms Elwell:** Could I have Gerry on full cost and Greg on landfill.

**Mr Scott:** On this whole question, which is obviously for any public official but really anybody in the debate, the question of the consumer costs, sure, it's there. We certainly agree that over time there will be price increases. Our organization has argued that there should be almost constant price increases until we start to see the capturing of the real costs. But we also believe that they can be done in a way that is gradual so you don't have incredible rate shocks that are a huge diversion from some of the key parts of this debate.

When we talk about cheap power, whether you're running a small business, a large business or a household, you don't necessarily want cheap power; you want a smaller bill. This is where demand-side management, in our view, becomes so important. You don't have to pay anything if you're not using that power. "There's nothing freer than free," to quote a former Premier of British Columbia who is of your political persuasion. By demand-side management, we are taking a portion of that bill to zero. So the unit costs become secondary, in a sense. We've heard the description on gas in this province with demand-side management, and throughout North America in the 1980s—particularly in the 1980s but there are some still in existence today, despite deregulation—we saw this miracle called efficiency take off in the electrical sector. I would urge the committee to really get into that historical literature, where the investment brings such payback, and it brings it quickly, as opposed to a long-term debt on a stranded asset.

On real costing, we have to look at the costs that coal and other forms of fossil fuel are imposing on society. You've heard, I'm sure, other testimony about these things called externalities, which is a technical word for dumping your garbage onto someone else, physically and financially. That's what burning coal is all about in this province, where acid rain, fouled air and climate change—those costs are put on to somebody. Where? Who knows, who cares; nothing to do with the utility. So those real costs have to be incorporated into the utility price, not into the price of the Ontario medical system, to use one example.

I'm sure you've heard this. Those economics are real, as the Ontario Medical Association will tell you.

**Mr Chair:** We are well over our time. Thanks for coming forward and I hope your conference was a success.

**Ms Elwell:** Thank you very much. Just to let you know our next steps, we will be doing a letter-writing campaign to each of the MPPs to support you and your work for an RPS and DSM.

**The Chair:** Thank you very much. Have a good day.

1220

RONALD PIET  
HANS ARD

**The Chair:** Our last presenter for this morning and next presenter is Mr Ron Piet. Please come forward. For



individuals, a total of 10 minutes has been set aside to make your presentation. Whatever is left over we'll divide between the caucuses. Please state your names for the sake of Hansard as you begin.

**Mr Ronald Piet:** My name is Ronald J. Piet. I'm an independent innovator and inventor.

**Mr Hans Ard:** My name is Hans Ard. I'm the president of DH Design Ltd and SA Industrial Design Ltd, a manufacturing company and a real estate company.

**Mr Piet:** We are both Ontario residents who have shared an interest in alternative energy issues. We have acquired the inventory of a former corn stove manufacturer and for a couple of years have studied the problems with the industry, with the market, and gained an understanding of the technical operations required. We have improved them immensely and that is what we wish to commercialize.

As a background, shelled corn, that is, dried corn, commonly used as feed corn, can be used as a fuel. In fact, corn burns very well, not loose in a pile but in a special appliance that is dedicated for that purpose. This has been recognized by Ontario's Ministry of Agriculture, Food and Rural Affairs, which has published a fact sheet on this subject.

There have been a number of presentations to this special committee that deserve consideration, but because of the significant infrastructure costs they require, they could only be considered long-term propositions. We should remember that our existing energy source, infrastructure and supply chain infrastructure were put together over a span of generations at considerable expense. Fuel corn is a renewable energy that can be implemented in the very near future without any significant infrastructure costs because the production, moving, handling and growing of fuel corn has been done for decades and has very few unknowns. Millions and millions of bushels are currently being produced, stored and distributed into the marketplace. So for us to use corn as a heating fuel is easily attainable.

As has been reported to this committee before, consumers are reluctant to invest in any new energy system that has a high capital cost, regardless of how efficiently they operate and that there is a payback in a short period of time.

The cost of a corn-burning appliance is relatively low and it is borne, actually, by the consumer only. Some of the proponents of other alternate energy systems that do require extensive infrastructure just assume that that would be picked up by the government, but because there is no new infrastructure required, we could implement corn as an alternative fuel in the very near future.

It offsets fossil fuel use. We're talking about a renewable resource that can be grown in as little as 45 days. The industry has the potential to use what is called waste corn, that is, corn that is scorched or corn that is mouldy. It's not prime feed corn. Even recently, I have been checking with mills and they said that as soon as the corn doesn't meet standards, they essentially just throw it away. You could have it for free.

Production is not centralized, consumption is not centralized and the distribution system already exists. We've got mills, we have feed stores, we have the road system, we have the farmers growing it. They don't need any new implements to harvest it, to plant it. Everything is already knowledge under their belts. There would be no reluctance.

This would add economic benefits to the small towns and rural areas of Ontario: increased production, increased distribution. That would then create more opportunities in Ontario for manufacturing the appliances that would burn feed corn, and then from there we could do export.

The problem is there is very poor awareness of corn as a fuel. The problem has also been that the appliances that exist for burning corn do not operate well. They're poorly designed and there are also styling problems, where they wouldn't fit into the decor of people's homes. We've understood those problems and we have worked on the technical aspect of burning corn and I'd say we have pretty well perfected it. The cost of burning fuel corn is comparable to the cost of burning natural gas. It's lower than wood, lower than oil, lower than electricity. You could then burn corn in areas that aren't serviced by natural gas, which is chiefly rural areas and small towns where the corn is grown. Our solution is a proprietary corn-burning technology that overcomes the previous problematic designs. We would like to develop a range of models that would fit those needs.

Our recommendations to the special committee are:

That the current grading system for corn include a category called fuel corn—it doesn't have to have a minimum amount of protein, for example, and it doesn't have to have a certain density, which is now required for feed corn;

To fund R&D to develop special hybrids that would be even more efficient as a fuel, and then to fund R&D to develop large-scale fuel corn systems for greenhouses, for example;

To offer grants for UL/CSA approval for these appliances so they can go on to the market and then offer an Ontario tax credit for fuel corn.

We feel that education of the public on the benefits of fuel corn—it's a desirable fuel alternative, it can utilize what is currently waste, it does not pollute and it lessens fossil fuel dependence. Thank you, Mr Chair.

**The Chair:** Thank you very much. We have about one minute per caucus remaining, starting with the government side.

**Mr Hastings:** Thank you for coming out, gentlemen. You say this could be a readily made fuel corn technology in the near future. How do you translate "the near future" in terms of years and what do you see as the practical difficulties, as well as financial? One of the disappointments I've had from this committee is the near lack of the financial community—whether it's labour-sponsored venture funds or the investment dealers' association, even straight pure angel investors. They're well hidden and we've had little response in getting these

people here to harness some of your new ideas. How would you go about doing some of this?

**Mr Ard:** The barrier there is there's a Catch-22. There isn't a market for the products and there isn't a supply. It has to start somewhere. A person like myself is looking at saying, "Well, this thing can start on a smaller scale." Within a year you could have product on the market. We have one unit that's been developed that handles one small portion of the potential. It's a beginning and it could be commercialized within a year.

**Mr Hastings:** Does the National Research Council then play a role here, do you think?

**Mr Ard:** There is a division called CANMET that deals with solid fuel combustion technology. But for all these things, of course, you need money to start. That is the missing ingredient. Because there aren't astronomical returns immediately projectable, no one's going to jump into it.

**The Chair:** The official opposition?

**Mr Parsons:** A two-part question: one is, no farmer ever set out to grow waste corn. They're looking for the premium. Assuming there wouldn't be enough waste corn to meet the market, have you any sense of what effect your demand would create on corn prices, thinking of farmers who want it for feed? So the first question is, what would the economic effect be, and the second is, for a house of 1,400 or 1,500 square feet in southern Ontario, what size storage capacity of corn would you need to feed the stove for the winter?

**Mr Piet:** I'll answer the first part and Hans the second. The first part of the question was about the effect demand would have on corn prices. It's true that no farmer goes out to grow waste corn, but if his density is low, and because the mill packages the corn in feedbags by weight under very tight, stringent federal standards, if that bag weighs a little less, he can't sell it. So they measure the density immediately and realize that they would come underweight under weights and measurements and it's turned back to the farmer. If the elevator scorches the corn in the drying process, they themselves then just throw it away. So there is waste coming back to the farmer and then there is waste at the elevator end.

But the farmland in Ontario for corn production is underutilized. In fact, production now is lower than it has been in the past. There are a lot of fields and fallow. So if there was a designation for fuel corn or popularity in the market, there could be more production done within a season that shouldn't affect, then, the cost of the corn.

**Mr Ard:** To answer the second part of the question, these two bags represent the energy equivalent of a litre of propane. The fuel wouldn't have to be delivered all at once. It could be delivered like propane or fuel oil is delivered, on a frequent basis. Therefore, your tank or storage could be whatever size you felt was convenient and economical for efficient delivery. So it's similar to an oil tank, I suppose, in size.

**The Chair:** Thank you very much for your presentation and for coming forward. It's something that has been out there, but you're upgrading and we look forward to its production in the future.

The select committee on alternative fuel sources now stands recessed until 1400 hours.

*The committee recessed from 1232 to 1404.*

## ONTARIO ENERGY ASSOCIATION

**The Chair:** I'm going to call the select committee on alternative fuel sources to order. The first presenter is Bernard Jones, president and CEO, Ontario Natural Gas Association/Ontario Energy Association. Welcome. It looks like there's more than Bernard Jones here.

**Mr Bernard Jones:** There is indeed, Mr Chairman. Thank you very much.

**The Chair:** There's a total of 20 minutes. After your presentation whatever is left we'll divide among the caucuses. Maybe you could introduce your delegation.

**Mr Jones:** Indeed I will. On my right is Jasmine Urisk, president of JTU Consulting Inc. It's a company that provides environmental services to the energy sector. On my far left is Peter Heffernan, regional director of Rolls-Royce Energy Systems, a natural gas turbine manufacturer. On my immediate left is Keith Rawson, manager of marketing, TransCanada Power, an energy producer. In the audience is Mr Peter Budd of Power Budd LLP. He's chair of that company, and that company provides legal services to the energy sector. Mr Heffernan, Ms Urisk and Mr Budd are on the Ontario Energy Association board of directors. Mr Budd is the chair of that association. Mr Rawson is the chair of our energy markets committee. So that's our panel.

I would like just to open with some brief comments from our executive summary, the document we've tabled with you today. Then we'd be delighted to take questions.

Of course, the association is very pleased to have this opportunity to respond to you, to the committee and to the interim report. We particularly appreciate the consultative approach that the government has adopted in this regard. We are a new energy voice in the province. We are a new trade association created on January 1 of this year. We were created out of the Ontario Natural Gas Association, the Ontario Energy Marketers Association and major new partners in the Ontario electricity sector. Attached to this submission is a list of the 100 or so companies that are currently our members.

With regard to the interim report, we fully support the six objectives that have been identified by the select committee, and in particular we'd like to underscore that we believe that the competitive market must be the primary vehicle for the development of alternative fuel sources. So we definitely put the emphasis on reliance on the competitive market place. At the same time, we do believe that the government can play an important role in supporting the development of alternative fuel sources, first by committing to procure some alternative energy for provincial operations. In this regard, it would help the municipal and university, school and hospital, or MUSH, sector, as it's called, to find the economic means to increase the use of alternative fuel sources. Second, place



greater reliance on energy efficiency measures, for example, in building codes, education and training; and third, encourage research and development and demonstration of alternative fuels through tax provisions, government procurement and other measures.

With that brief introduction, we'd be pleased to answer any questions that the members of the committee may have. Thank you.

**The Chair:** You said it was going to be brief; you certainly have been brief. Thanks very much. I guess we'll start with the official opposition. We have about eight minutes for each caucus.

**Mr Parsons:** I don't have a question yet; I'm still thinking.

**The Chair:** Would you like to pass and we'll go to the government side?

**Mr Parsons:** If you come back to me. I don't wish to relinquish the opportunity.

**The Chair:** Sure.

**Mr Gilchrist:** John would have a preamble until that time.

**Mr Hastings:** Thank you for coming in today. In your comments you noted the necessity for some kind of tax provisions for the encouragement of alternative fuels. What is your specific thinking regarding those types of tax incentives? Should they be targeted? Should they be of an imbedded nature in the tax regime of the province so they cannot be immediately dislocated by somebody who doesn't regard renewables as an important element of future energy planning?

**Mr Jones:** Keith, would you like to respond to that question?

**Mr Keith Rawson:** I think when we made reference to tax types of instruments, we're putting that position forward as a way to have minimal impact on the marketplace. For example, the federal government has provisions for reduced or changed taxation for certain qualifying facilities, and that's the kind of thing that we're talking about.

**Mr Hastings:** The recent Martin budget—I haven't looked at the details—has suggested a targeted production tax for wind energy. Any comments there, even though it's outside your ambit in a way?

**Mr Rawson:** I don't think that's the kind of taxation methodology that we're recommending. We're recommending a methodology that's encouraging but not to the point of specifying what levels people will invest in and therefore take advantage of the mechanism.

**Mr Hastings:** This morning, we had a group of people in from the Canadian Institute for Environmental Law and Policy and the David Suzuki Foundation. One of the observations made by two of the presenters in that group was that we're missing a magnificent opportunity insofar as turbine manufacturing is concerned.

1410

I hear that you represent a particular type of turbine and that Ontario needs to have some kind of an accelerated tax regime in place to deal with having a greater

turbine manufacturing presence. Would you like to comment on that, sir?

**Mr Peter Heffernan:** I will. Rolls-Royce does manufacture gas turbines in Canada, in Montreal specifically. I am not a tax expert by any means, but my understanding of the current tax regime that's in effect federally is a class 43.1 accelerated depreciation. If you meet certain thermal requirements, you can write off a plant very rapidly, which provides an incentive. We have a number of facilities that have been built by people and have taken advantage of that type of tax incentive.

Additional tax incentives to encourage more gas turbines going into the marketplace—I'm not aware of any. The gas turbines typically are highly efficient and on a pure economic analysis tend to be very competitive. So I'm not aware of any tax incentives proposed. I wasn't privy to their presentation this morning. I'm not sure what they were specifically referring to.

**Mr Hastings:** They were talking about, I guess, different types of turbines besides gas-generated and that if we don't get into this field, Ontario will, as usual in this whole area, be a net importer of sophisticated equipment, not just in gas-generated turbines but in the whole renewables industry.

**Mr Heffernan:** Unfortunately, in the manufacturing sector, from my understanding—I'm not familiar with all the different technologies that are manufactured, but other than Pratt and Whitney, Rolls-Royce and Westinghouse, I don't think anyone manufactures gas turbines in Canada that I'm aware of. I don't know if that would encourage people to locate plants here, because the Canadian market for gas turbines is not as big as the American market. I don't know if it would have the desired effect. I'm not an expert. There is some manufacturing here now, but it's not extensive.

**Mr Ouellette:** A couple of questions. Earlier on this morning we had the Canadian Petroleum Products Institute; I think that's who it was. They made specific comments regarding your particular industry as it relates to automobiles, that it's had a number of years of incentives and yet it fails to mature in any way, shape or form. Can you give us any explanation as to why or how long should any incentives go on for the industry so it can reach maturity?

**Mr Jones:** Can you clarify something for me? Did you mention transportation fuels?

**Mr Ouellette:** I think the Canadian Petroleum Products Institute were the ones who spoke about your particular natural gas vehicles.

**Mr Jones:** Oh, natural gas vehicles.

**Mr Ouellette:** Yes.

**Mr Jones:** We don't have a spokesman here today for the natural gas vehicle industry.

**Mr Ouellette:** Oh, OK.

**Mr Jones:** There is another alliance called the Canadian Natural Gas Vehicles Alliance, and we could make contact with them for you if you wish and they could reply to a question.

**Mr Ouellette:** OK. The other question I had was regarding supply and demand. There are studies in Alberta and in the United States that indicate the demand is going to far exceed the supply by the year 2015, and that the pipelines coming down from the territories will effectively only replace the current stocks that are available. What's taking place within your industry to ensure that it's going to be able to meet the demands that are going to be out there by the year 2015?

**Mr Jones:** I think at a general level this is why we've put stress on the requirement to allow market forces. In recent years there's been a tremendous amount of investment, both in the exploration and development end of the natural gas industry and also in transportation and distribution. So if the market sends the right signals, then the investment takes place.

With regard to the specifics of the pipelines, Jasmine, do you want to add anything?

**Ms Jasmine Urisk:** I don't have anything to add at this point, Bernie.

**Mr Gilchrist:** Just very briefly, along the lines of Mr Hastings's question, there certainly are some very significant uses of natural gas in the province today under the current pricing and, in the case of vehicles, tax incentive regimes. There is also no doubt—I don't think there would be any disagreement around this table—that natural gas would be a significant step along the evolutionary scale beyond coal, and this committee certainly should be looking at any steps we could take.

Contrasting the short term from the long term, there are some supply issues that have been raised in regard to natural gas. I guess the biggest question we're wrestling with here is that we categorize the immediate, short-, medium- and long-term proposals we can be putting in our report. Where, realistically, would you have us put any new uses for natural gas, at what cost, and what would the life expectancy be given the supply problems? If, for example, we were to propose to convert all the coal plants to natural gas, what impact would that have on supply and on the cost of natural gas? Obviously, you've got more people bidding in the competitive market.

**Mr Jones:** That's a hugely complex question.

**Mr Gilchrist:** Take your time.

**Mr Hastings:** We want a complete answer.

**Mr Jones:** Of course, yes.

Again, I go back to reliance on the marketplace. To meet the growing demand for energy generally, we have to make sure we have a competitive marketplace and a truly level playing field so that the options can be tested in the market at market prices and we get the best choices for consumers. Wholesale conversion of any particular power plant to natural gas may not be the best option. It will have to be judged on a case-by-case basis.

I don't think there is a simple answer. You can model these things, you can come up with different results based on different assumptions, but I think in the end there's a limit to the amount of planning you can do, as in central planning. But you leave the development to the

marketplace and the energy producers, whether it's electricity or gas, and the distributors and transmitters will do a good job of making sure, if the demand is there and the price is right, that the supply is available.

**Mr Gilchrist:** I guess the problem we're struggling with here is that we're not proposing necessarily to leave it totally up to a competitive marketplace. In a perfectly competitive model out there, maybe we'd be burning nothing but coal, if that happened to be the cheapest alternative right now. I don't think anyone from an environmental perspective would be too comfortable with seeing locomotives, for example, outfitted to burn coal again instead of diesel. So supply isn't the issue and in some cases, such as the locomotives, even price isn't the issue. I don't think you could ever seduce the railroads into going back.

If the committee and then the government were to act on any of the committee's recommendations to skew the marketplace by imposing other criteria, namely, environmental, what will the impact be in your industry? Using that hypothetical example, would the increased demand for natural gas in our current coal-burning facilities mean that you would be facing supply problems?

You make a simple choice. It's a lot more profitable to ship a whole lot of product to one customer than to ship a little bit of product to a whole bunch of prospective new customers, ie, natural gas vehicles. While I understand your association casts a wide net, would that be a likely scenario, or would we see prices go up because you're going to have more people competing for the same resources being able to funnel through that same-sized pipeline?

**Mr Jones:** At one level, it's difficult to respond to a hypothetical question that way. That's why I go back to complexity. It really is a very complex issue. There's no question, other things being equal, that if demand increases, then the price could increase—no question of that. But you have to look at the competitive situation of all the alternatives. What are the alternatives for generating the electricity? Under certain circumstances, any number of options could be the best choice.

The difficulty is that in looking at imposing environmental constraints on plants, you need to make sure you have the right kind information to be able to do this, and I'm not sure you have that. I'm not sure how easily it can be gotten at without sitting down with the companies that would be involved and working through the proper scenarios to make sure it's all been taken properly into account. There could be a danger of making blanket decisions, blanket regulations, that are not productive and in fact hurt the public interest rather than advance it.

**Mr Parsons:** I've been made aware through my interest as a rail fan that there are a number of towns in California that purchased used diesel locomotives and they're now parking them outside the town to generate electricity for that town, burning diesel. It's evidently a fair growth business for one particular company.

I'm not sure whether I'm asking you as your association or leaning on a representative from Rolls-Royce,



but do you envision, with the deregulation, an increased market for turbines to generate electricity for industry or for municipalities?

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**Mr Heffernan:** It's a good question. We believe that the market will respond with gas-fired generation, at least in the short term. It's probably the largest chunk of new capacity that will be built, for a lot of reasons. If you look at the straight economics, the environmental impact, most of them emit low emissions. There are a lot of reasons that it will happen.

It also ties to the question Mr Gilchrist asked. He just left the room, but in terms of the impact of mandating a mass retrofit of an existing large thermal plant to allow the market to respond with smaller chunks of generation closer to the load, you're going to accomplish the environmental objectives by allowing the market to respond with load, because in a decentralized, open market I don't think you will see a lot of very large plants being built, at least in the short term. I think you're going to see smaller chunks of generation. I don't mean one, two or three megawatts, I mean 50 megawatts, 100 megawatts, 150 megawatts, located closer to where the load is.

That has infrastructure benefits as well, in that you're not going to be building large transmission infrastructure to move electricity around. It just makes the whole system more efficient.

We do see a market for gas turbines. Again, we have a number of projects in Ontario. The market has been delayed. People have been sitting on the fence. I just found out last week that one has been delayed by at least another three years because they signed a good contract with an electricity supplier. So their motivation was based on their internal infrastructure, their boilers having about five to eight years left, but also straight economics. They got a good deal on electricity so this project is no longer economical in the short term. Those are the kinds of rational decisions that people make around building new generation and moving forward.

**Mr Parsons:** But do you see your increased market because you're going to have a product that will be more economical for a large industry to self-generate or because of reliability of supply?

**Mr Heffernan:** That's another good question, because they are both issues. One of the things driving people—it depends on what an end-use customer needs. If reliability is an issue, then that can be a driver in putting in their own generation. Most of them make rational business decisions based on straight economics, but where you have a thermal house, someone who is requiring steam and electricity, the overall economics and efficiency of that are better than operating a standard boiler and buying electricity from some supplier somewhere else. You just have natural economies. You hear the term "economies of scale." Well, large doesn't necessarily mean that it's the most cost-effective project you can build. It depends on the other synergies that are at the site and it's very site-specific. But we do see—which is why I joined Rolls-Royce when they approached me four years ago—a

market when the market opens up for smaller chunks of generation like that, and most of them will be gas-fired turbines.

**The Chair:** Thanks for coming forward with your presentation. It's very much appreciated.

#### ONTARIO CORN PRODUCERS' ASSOCIATION

**The Chair:** Our next delegation is the Ontario Corn Producers' Association, Terry Boland, director of public affairs.

**Mr Terry Boland:** This was a quick lineup, so we didn't get the opportunity to introduce the actual presenter for our presentation today, who is Doug Eadie, the chairman of the market development committee for the Ontario Corn Producers' Association. He will be making the presentation.

**The Chair:** OK, thank you. You have 20 minutes. After your presentation, whatever is left over we will divide evenly among the caucuses for questions.

**Mr Doug Eadie:** Thank you once again for allowing Ontario's 21,000 corn producers to provide input into your committee's development of recommendations on alternative fuel sources for the province of Ontario.

The Ontario Corn Producers' Association appreciates the enormous task the committee has undertaken and their urgency in addressing growing air quality and other environmental issues as indicated in your interim report, and rightly so. The committee has worked hard to provide balance between achieving a sustainable economic, social and environmental balance in policy development. Also, the interim report makes a clear distinction between the short- and long-term recommendations for action in addressing energy efficiency, improved air quality and researching the future potential alternative fuel sources.

The Ontario Corn Producers' Association has been working on the development of renewable fuels for close to two decades now. We feel fortunate that legislators and consumers alike have started to embrace the concept that options do exist beyond the status quo and we can do something about reduced air quality and greenhouse gases caused by vehicle emissions.

Today, ethanol-blended fuels are available in hundreds of locations across Ontario and indeed Canada. It took a leap of faith by retailers like UPI Inc and Sunoco, plus many smaller independent fuel retailers, to get the fuel on the market. But it's just the beginning of a concerted action if where to make the economic, social and environmental benefits long term.

We feel the development of the Ontario ethanol industry is an important success story. Two decades ago we did not have any ethanol production in the province. Today, we have approximately 173 million litres of ethanol being produced in Chatham and Tiverton, Ontario. Two other projects are in development. This represents over \$50 million in corn sales alone.

What has it done for this province's corn producers? It has provided a new value-added market for corn, creating jobs and working to provide new economic and social benefits to rural Ontario. The two plants currently in production utilize 17.3 million bushels of corn and have propelled Ontario into the leadership position in ethanol production in Canada. But we cannot take this for granted. It took a lot of hard work to get the industry up and running and it remains fragile.

Government has played an important role. The provincial road tax exemption on alternative fuels and the Ontario ethanol manufacturers' agreements have been important instruments in getting the industry off the ground. But like any new industry, barriers exist and it will take an enormous effort by all parties—feedstock suppliers, processors, retailers, government and consumers—to ensure that we do not slide backwards into the 20th century.

Ethanol-blended fuels are here and now. They are on the market. They are providing economic and environmental benefits now. They are part of the short-term solution, already accepted and provided to vehicle operators at a reasonable price and at many locations. Price and availability are key to consumer acceptance, the test for a change in the alternative fuels market.

We would like to make further comments as we answer some of the questions posed by your report.

Should a provincial strategy in alternative energy and fuel sources be developed? Clearly, yes. If you do not, you are accepting the status quo and a continuation of smog alerts and the continued environmental damage from greenhouse gases. Ethanol has always been part of the solution, short and long term, but it needs expanded support from the Ontario government.

What specific financial incentives or policies are most effective to overcome market barriers for various fuel or energy types? The road tax exemption has been crucial for consumer acceptance, allowing ethanol blends to be sold at prices similar to gasoline. Further public support for constructing plant facilities would help secure the industry's place as a mainstream sector in the minds of financial institutions and investors.

Should Ontario develop alternative fuel/energy procurement targets and requirements for provincial procurement? Governments have become leaders in setting social trends such as buying environmentally beneficial fuels like renewable fuels. The establishment of a procurement policy for ethanol in Ontario ministries and the development of fuel depots for car refuelling would be an enormous positive step forward.

Should the Ontario government consider a lead ministry, interministerial group or special sector group to formulate and coordinate alternative fuel and energy policy? Legislators must set policy and provide direction and interpretation of that policy. An interministerial group would ensure that policy is followed and implemented among all industry partners but must report back to legislators on the progress made.

On the issues of research and financing of projects, we must always strive to improve our performance and support for research projects will allow us to improve the efficiencies and effectiveness of our alternative fuel sources. The Ontario government has provided some financial support for ethanol production projects and the support has had a very positive effect on moving these new energy sectors forward, both through confidence in the project and in the industry.

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Should the Ontario government piggyback with federal programs in the development of alternative fuel energy policies and programs? Yes and no. Many areas, such as fuel components and environmental initiatives, are already joint federal-provincial programs. But Ontario must face its own issues head-on, such as smog alerts in our major cities. Ontario can provide leadership in helping to offer consumers renewable options, and set an example of confidence. But other, more complex issues which have no borders, such as greenhouse gases, need a concerted effort by all levels of government, even if it does take a little longer to reach the objectives. The benefits will be long-lasting.

Should educational curricula be revised to include alternative fuel energy topics? Absolutely. One of the significant issues with renewable fuels is the understanding of the fuels. Apprentice mechanics are a good example of the need for awareness of renewable fuels. In fact, the industry has been trying to get teachers to include renewable fuels in their courses, with limited success due to financial limitations and the inability to reach all of the educators. Many myths have been created, and confusion exists between fuels such as ethanol and methanol. Inclusion of renewable fuels would lift this burden off the industry. Awareness of environmentally beneficial fuels would also help set a mindset among students about their benefits and use.

On alternative fuels, should the Ontario government acquire alternative fuel vehicles where feasible and practical for its vehicle fleet? In fact, the Canadian Senate passed legislation requiring conversion of the federal fleet over several years. The policy also includes the use of ethanol-blended fuels, based on price and availability. The government introduced a sticker program on vehicles to remind employees to purchase low-level ethanol blends. Governments must set an example for the consuming public.

A crucial question: should the Ontario government establish programs to support increased ethanol production from Ontario-based agricultural cellulosic feed stocks? Should enhanced production targets be established in conjunction with federal efforts to boost Canadian ethanol production? Should the use of ethanol in all gasoline sold in Ontario be mandated? Yes, if you want environmental benefits much sooner rather than much later. The federal government has set a production level of one billion litres by 2010 to assist in meeting greenhouse gas reductions. If Ontario is to maintain its industry-leading position in ethanol production and reap



the benefits to the economy, job creation, agriculture, rural municipalities and the environment, it must be proactive and aggressive in supporting its industry. Support through the interministerial committee, with the Ministry of Agriculture, Food and Rural Affairs leading on the ethanol portfolio, would be a major benefit. A renewable fuels standard would ensure ethanol, biodiesel, and other renewable fuels would be included in future energy policy and consumer use in achieving the clean air objective. We should point out that biodiesel and e-diesel—ethanol diesel—are important components of a renewable fuels policy, both providing important economic benefits to Ontario.

In conclusion, we would like to congratulate the Ontario Legislature and the select committee on alternative fuel sources for taking this bold step in moving forward on cleaner fuels, clean air policy, and support for new energy options in the province. But as the old saying goes—and we know this committee believes in it—actions speak louder than words.

Thank you for this opportunity.

**The Chair:** Thank you for your presentation. We have four minutes per caucus, starting with the—I guess we jumped over there before, so we over here this time. Mr Ouellette.

**Mr Ouellette:** I met with some mixing people from Sunoco. They expressed some strong concerns regarding the distribution for their mixing plants for ethanol. They had a real problem in getting the actual ethanol to a lot of locations. Do you have any future plans to ensure that ethanol production is going to be around the areas or plants coming up that will be able to produce in areas where it's required? Because they were saying that they had to bring in large numbers—I think it was to the Ottawa area, if I remember correctly—but they had to bring it from Chatham to Ottawa. It was very cost-ineffective for them to do those things.

**Mr Eadie:** That is the Seaway Valley Farmers' Energy Co-operative. They've had their proposed plant, in the Cornwall area, on the drawing board for approximately nine years. They've been close a number of times. The most recent problem they've run into is their proposed contract for the plant had to be rebonded because of the September 11 issue, where they got into trouble with reinsurance and things like that, so they've had to go back. In the interim they got into some new financing problems. Then, of course, there is the proposed Iogen facility, wherever it's located. For eastern Ontario it would be very important to have that plant up and running. There is the other commercial plant that's going to be built in Quebec, but we would rather see the plant constructed.

**Mr Ouellette:** I saw this month's corn producers' magazine. It talks about a number of issues, trying to bring the feds on line to get a national policy to reach the levels that are expected out there for ethanol production. What level of crop production would it have to increase to in order to reach the Ontario requirements that were mentioned in the magazine?

**Mr Boland:** We have to be careful when we're talking about a national policy versus provincial. National policy—we're looking at plants and feedstocks from across the country. We look at barley, we look at wheat; we're looking at the cellulosic option that's taking place in Ottawa. There are a number of renewable fuel feedstocks that will be coming on line. If we're going to meet the criteria of what will be a billion litres for Ontario gasoline consumers, and even maybe a larger amount to meet the Canadian demand, we're going to have to look at all feedstocks. I think we were aware of that and the government's been aware of that since the beginning of the discussions.

**Mr Gilchrist:** My question was along a similar vein. It's my understanding that already we have far more demand than we have supply, that in fact Ontario is a net importer of ethanol, and that's with the current incentive. Help us out here. What would perpetuating that incentive do, or would you suggest that if we are going to move this thing forward we have got to, again, as was mentioned by one of the previous groups, lead the market and mandate, for example, the use of ethanol to a certain percentage, forcing the oil refineries to do something, presumably?

**Mr Boland:** That's sometimes the only option when we deal with established industries, to try and get certain changes we'd like to see.

**Mr Gilchrist:** Is it the most realistic option?

**Mr Boland:** To be fair, it's not black and white. When we were developing the industry, we had no ethanol, so we had to actually bring some in. Then we got a couple of plants going and we had more ethanol than we needed for the fuel and demand, so we were actually selling it out of province. Now we're back on the other side where the demand is greater than the supply, and we're trying to build plants with Iogen in Ottawa, with Seaway Valley in Cornwall and with CAI in Montreal. We were going to see that going back and forth on an ongoing basis no matter how much production we have. It will all depend on just what we have and how we address it.

**The Chair:** Mr Hastings, you have less than a minute.

**Mr Hastings:** Gentlemen, you're trying to get to renewables and corn and the biostuff into the schools, without much luck. I guess they don't have any agriculture teachers left in the rural schools.

**Mr Boland:** It's a very large job. I'm sure you all appreciate the size of the education system in this province, the number of students, the number of teachers. We're just a small little association trying to get some myths dispelled about ethanol, about what some of our competitors have said about ethanol for 20 years.

**Mr Hastings:** Do we need to advocate and have a specific course or program at the community colleges and even a degree at a university in all the renewables?

**Mr Boland:** It needs to be worked into the existing system, because when a mechanic is dealing with cars, they're dealing with all fuels, with all parts of a car. What we need to do, at the least, is to make them aware of the fuels and how they operate. We've had cases where mechanics have come to us and basically said, "We don't

know what the problem is. It has to be ethanol." We're facing that. We also have confusion between ethanol and methanol. We're ethanol. Methanol is a derivative of natural gas. It's a fossil fuel; it's not renewable.

**Mr Parsons:** Following up on Mr Gilchrist's comments about the demand exceeding supply, as we quite understand is the case, I'm certainly not an expert on this, but we feed cattle and we buy corn. We buy corn because I can buy it far cheaper than I can grow it. Maybe it's just because of the size of my operation, but I couldn't dream of growing it for what I pay. Is that a factor in why there is a shortage in supply or is it in the production equipment itself? Is there a shortage of corn or a shortage of locations to process it?

1440

**Mr Eadie:** No, there's no shortage of corn. Realistically, too, any industrial user of corn in Ontario looks at what they call the Great Lakes basin of supply. They look to a ready supply of corn from both the US and Ontario. Some corn producers in Ontario don't like to see, from time to time, American corn coming in, but at the same time, if we didn't have that total supply of corn to draw on, you wouldn't see the industrial users of corn locate in Ontario.

**Mr Boland:** I should point out and add that Commercial Alcohols has made it quite clear that they would prefer Ontario corn before they had to buy corn elsewhere. But, then again, we're looking at a total year of production, not just one month or a couple of months.

**Mr Parsons:** At the present time, Sunoco and the others are about 10% ethanol into the mix. My understanding is they could go to 80% or 85%.

**Mr Eadie:** If you have a flex-fuelled vehicle, yes. Any vehicle manufactured today for the North American market is warranted to run on up to 10% blends.

**Mr Parsons:** But it could not exceed that.

**Mr Eadie:** If you exceed that, then you have to go to a flex-fuelled vehicle, which is basically just to switch from within the vehicle, to switch the carburetion procedure.

**Mr Boland:** There's an intermediary of benefits. If you go over 10% and up to 20%, you can still go with more ethanol. It's just that you don't get the benefits. The automobile companies have been using that to meet CAFÉ standards in the United States. They were not doing it because it was going to clean the air. They had certain requirements by government that they had to meet. Yes, you get past 10% and you don't get quite the longer benefits that they would be able to benefit from CAFÉ standards. They have restricted it, because you always have to remember that ethanol is a little more expensive to produce than gasoline.

**Mr Parsons:** But the health care costs are offset to the point that there are tax advantages for ethanol.

**Mr Boland:** The irony is, if you look at things like our road de-icer, we've tried to sell the Ministry of Transportation on that for years, but they've never taken into account bridge damage, vegetation damage or underground parking damage. They won't count that in

as part of the cost of producing it, so things like corn-based road de-icer is extremely expensive compared to the production of salt. Yes, you're right. There are things like health costs that need to be taken into account.

**Mr Parsons:** But your Cornwall expansion is based still on the 10% mix?

**Mr Boland:** Cornwall sells ethanol. It doesn't tell them how much to put in. That's a decision of the retailer.

**Mr Parsons:** But if we remained at 10% there would still be a market for everything produced by the Cornwall operation?

**Mr Boland:** Absolutely.

**Mr Bradley:** The Canadian Petroleum Products Institute said about four times in their presentation that, "Alternate" fuels not a panacea." They kept saying that. "Most offer little or no compelling environmental advantage."

**Mr Boland:** That's a step forward. Before they wouldn't even mention ethanol. And you realize that Sunoco, which is a member, is also a retailer of ethanol-blended fuel. Yes, they also go on to say a few other things in making the fuel choice, which I read in their brief earlier today, and that's about the only thing I can probably agree in total with.

But, yes, I'm not surprised they've said it. It's the same line, but believe it or not, they're changing their tune as well, right down the line of all the companies that are in that association.

**Mr Bradley:** Would you say that it's public demand and public desire to see environmental benefits driving that? There's nothing else surely that would drive it except they see it as potentially bad public relations if they don't and good public relations if they do.

**Mr Boland:** I hope that's the case, but I would add that when you look at federal regulation and you see the reduction of sulphur, benzene or other components in gasoline, a lot of the oil companies are actually making those changes to ethanol because they do see a stable component that they can put into gasoline which is an additive, an oxygenate and an enhancer for gasoline, and something that may not have to change for 10 or 20 years while the other components are all being questioned and may be reduced over a period of time.

**Mr Bradley:** Dispel a myth for those who are watching across the province at this time that when you have an ethanol blend in the fuel you're burning in a car, if you get into these northern climates somehow it's going to adversely impact the performance of the vehicle. Wrong?

**Mr Boland:** We don't sell winter gas. In fact, we have a natural gas line antifreeze in ethanol.

**The Chair:** We're going to have to move along. Thanks very much for your presentation. It's much appreciated.

#### ELECTRIC TRACTOR CORP

**The Chair:** Our next delegation is Newton Gingerich, founder, the Electric Tractor Corp.



**Mr Bradley:** The Tories must have arranged this. Wasn't Newt Gingrich your guru at one time? This is Newton Gingrich, not Newt.

**Mr Newton Gingrich:** First of all, I want to introduce Hal Dickout, who is the general manager and president of SRE Controls, which makes the controller for our electric tractor. Without him, we wouldn't have all the safety features, all the beautiful things I'm going to tell you about that tractor. So we want you to address some of the questions to him.

At home I am known as Newt Gingrich, indeed, but I am not, nor ever was, Speaker of the House. I am not even speaker at my own house.

**The Chair:** Thank you very much for coming forward. There is a total of 20 minutes. What is left over from your presentation will be divided between the two caucuses for questions.

**Mr Gingrich:** Thank you, honourable Chairman, committee and guests. It's really a pleasure to be invited here. I get so excited about our electric lawn tractor and the spinoffs from it. For those of you who were at the Detroit auto show, I think the most exciting presentation was that platform which used all our technology that you could put an SUV on, you could put a sports car on, you could put a minivan or a pickup truck on. Just watch us—and watch us on the stock market, because we need your help there.

The first thing I want to look at—do all of you have a copy of this? OK. Let's change the order a little bit.

**Mr Bradley:** We have this.

**Mr Gingrich:** I'm really excited to see the number of farm boy backgrounds we have here, because I'm a farm boy too. What I'm going to talk a little bit about is getting out of declining markets and going into growing markets.

I was born on a dairy farm. As a little boy, I always admired the farm machinery dealer who came and sold us these fancy tractors. I thought, "Boy, that's where it's at," and so I went into that market and did very well. We had one of the largest dealerships in Ontario and two car dealerships besides. But I never listened to my own philosophy of getting out of declining markets and going into growing markets. I don't know if you remember when Massey-Ferguson had the whole west end of Kitchener, the whole town of Brampton was White Farm Equipment and Hamilton was all International Harvester. You thought, "Boy, these are establishments like Eaton's. They'll be here forever."

As we got into more and more agricultural recession—those of you who have been politicians for a while know that farmers got free trade long before the rest of us did. To make a long story short, even though all those tractors were produced in Ontario, right now there is not one tractor under 100 horsepower produced in North America. Just remember that. I only learned that \$3 million of my family's money too late. You, as a government, don't have to learn it the hard way. But let me tell you one thing: that doesn't mean that you replace an Eaton's with a Wal-Mart.

**Mr Bradley:** Hear, hear.

**Mr Gingrich:** I think it's so important, and if you forget everything else I say, I want you to remember that what is emerging technology, things like electronic drive systems—I won't have time to actually do the whole thing I want to do, but I want you to get a clear understanding. Instead of acceleration and power systems, I'm going to talk just about our braking technology—and I'm talking about both of us—and conventional technology. When I was growing up, we used asbestos linings in cars, which was supposed to be bad then. Asbestos linings would go about 135,000 kilometres. Then they said, "OK, use ferro-metallic, because we don't want asbestos in the air." A ferro-metallic lining does 90% more wear on the drum than an asbestos lining. So you have to replace that about every 44,000 to 48,000 kilometres. In the meantime, when you have to have your brakes done, you not only buy the linings like you used to, but you have to get a new rotor or a new drum. And where is all that heavy metal? It's all converted to ground-level ozone that kills vegetation and trees.

1450

The only reason I'm saying that is that what we're offering in regenerative braking is an armature. I'm going to talk about the tractor right now, because the other vehicle—I'd just love to, but there are a whole bunch of patents that have to be worked through, and if they're common knowledge you can't patent them, so I have to button my lip on a whole lot. But remember, once you perfect technology, you can make it as big or as small as you like. The idea is to perfect the technology, which we've done, and we have about 13 patents on it.

Let's just talk about stopping a car or, let's say, this tractor. It takes as much energy to stop a car from 100 kilometres an hour to zero as to accelerate to that. We don't realize that, and what we're doing now is really the same as putting your foot out and dragging it on the pavement. You're taking two pieces of metal and putting them together. There's godawful friction there, and it wears the stuff down. On my Saab, the owner's manual says I have to have my brakes blown out every 20,000 kilometres, and they actually have to wear masks and protective gear to do it. The rest of the time I'm putting it on the side of the road and nobody seems to mind that.

With our unit, whenever our drive motor isn't a drive motor it's a generator. You'd be surprised that it's like 50% of the time, because you can only go uphill for so long, and then you've got to go down. So our drive motor is either: whenever it isn't a motor it's a generator.

The other thing is, whenever you're stopping it becomes a bigger and bigger generator, but it never grabs the wheel like a brake. It rotates slowly until it comes to a stop, and if it doesn't come to a stop it rotates the other way. But the microprocessor does not let the disk come on. Mind you, our disks are good for 15 million stops. But they only come on once the vehicle is fully stopped, and then there's a 0.7-second delay. So you don't get any of that brake lining wear.

Let me explain the value of that. You could sit at a spotlight for an hour. That doesn't wear your brake lining. What wears your brake lining is going from 150 kilometres an hour down to a stop. We've eliminated that, because that's done in the armature. The armature becomes bigger and bigger, which is what the microprocessor does. The beautiful thing about that is the safety. For example, we can tell it to do all kinds of things. When they put it in a forklift, when the belly switch hits—normally, the guy has a hand thing, he gets in, it pins him against the wall. What does the Curtis controller do? It stops the unit. But maybe there's nobody else there. The processor puts the unit 18 inches the other way. The higher the forks go up, the slower the unit goes, if the unit tilts. You can build anything into these processors.

The really neat thing we're going to be able to do in this concept car is put in a gyro system that will literally keep it from losing control. It will actually know which way the car is supposed to go, aligned with the steering, and it will do braking on different areas at a thousand times the speed I could do it—maybe at half the speed you could; you know, a lot of people are faster than I am.

This is exciting stuff. Braking doesn't cause the dust that causes ground-level ozone that kills vegetation and trees.

Also, in the greenhouses—remember, electric motors are 90% efficient. A good gasoline engine is 11% efficient at most. If they put a Kubota or a John Deere on one train, first of all they could only pull 12 cars with it instead of 24 like we do. Let me explain why. They have ramps to a second floor. The tractor with an ordinary differential puts all the power to the wheel with the least traction. They get to that ramp, and if there's a banana peel on one side and one wheel spins out, the operator has to actually stop, because it's a gear differential lock. He has to press the differential lock, and then he can't start off the load because he only has one wheel driving, because the other wheel is on the slippery surface.

With our unit, the microprocessor has IR compensation. If that wheel comes loose, it never goes any faster than the other wheel. Then, secondly, in a thousandth of a second, all the power is transferred to the wheel that has the solid footing. So they go scooting up the ramp and they don't even know they ran over a slippery spot, and they've got the 24 carts on them instead of the 12. But the really exciting thing is that because of the efficiency of 95% instead of 11%, we can do two nine-hour shifts using 90 cents' worth of the electricity that everybody here has been talking about—90 cents' worth. For the Kubota or John Deere to do that same two nine-hour shifts it takes \$14 worth of gasoline, but besides that, they've got to get the gasoline there. The gasoline is not there at the greenhouse, it's brought in, so there's an additional cost there. The exciting thing about it is all over this place there are receptacles. You just go to the closest receptacle and you plug it in, and 60 cents and five and a half hours later it's back full again.

Safety is our number one concern. By the way, if you're a taxpayer or you're with government, you've

actually helped me build this, whether you know it or not. What it means is, each unit has safety built in. Let me give you an example. If you look at the mower there, first of all the mower can be tipped up and washed out.

Secondly, you know how if you turn on a vacuum cleaner and you plug it in the wall, guess what happens? The vacuum cleaner starts. Now, if you have your foot under the mower or something like that—but all we have to tell the processor, is, "Don't start," if there's nothing plugged into it. So you can actually turn the switch on—the reason we got this is, a farmer had his little kid sitting on the seat and it was enough to activate the seat. The kid turned the key on and turned the mower on. The farmer plugged the tractor in and the mower started going. Luckily, it didn't do any damage, but it was a wakeup call for me. I went to our chief engineer and I said, "What would it cost to put a little circuit in there that if there's no resistance at the plug, the mower won't start unless there's a plug in it?" He said, "The parts will be about eight cents and it will take me about two days of programming." But it's really exciting, because you can have a kid on the seat and you can plug it in and it doesn't start. It doesn't start until you turn the switch off and back on again.

The snow blower—you know, I've been on the farm. I used to blow out the neighbour's snow bank, and if I twisted off a sheer bolt in a storm, because I got something in, I headed for home and to the driving shed where I had some light, because you could never get the pin out and the other one back in. Boy, did I ever think this is handy when we just had to have an 80-amp breaker and you just press the button and you could do it right on the job and start the snow blower. Now, you get your newspaper in the snow blower. All you do is get off, pull the newspaper out, turn the key off and back on again and everything is reset. You just have to tell the microprocessor to do that, thanks to this guy and his engineers.

Is that other handout out yet, this guy?

**Clerk of the Committee:** They are still in the copier because it's such a long document.

**Mr Gingerich:** I have given away hundreds of these. I call back a month later. It costs me a lot more money than it does you guys to make this and it's on somebody's desk and nobody's looked at it. I wanted to make only as many as would read it, and then I got in trouble with Tonia there. She said everybody's got to have one. You don't have to read it, but I'd like it if you would. We'll come back to that.

How much time have I—

**The Chair:** You have about another seven minutes.

**Mr Gingerich:** Pray for that, those of you who do, that those other things will come here. It's really important, because I don't want to leave that.

Maybe what I will do is talk about this just for a minute before they come. The thing that I'm really saddened about now—all of you know that Bill Gates has two of our tractors at his campus at Microsoft. The Hudson River Park at Ground Zero has two now. But the



thing that's really exciting to me is, when I got the cheque from the Hudson River Park, you would think, well, it's from the Hudson River Park. The cheque was from New York state power, and New York state power has three other sales, and most of the time the cheque is from them because their subsidies are so big on electric vehicles in the state of New York and in—wherever Bill Gates is—

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**Mr Hal Dickout:** In the west.

**Mr Gingerich:** —in the west. I'm sure Bill Gates would have had enough money to pay for his tractors. As a result, the last time I looked, 93% of our sales are outside Canada. Only 7% of these tractors are sold in Canada, and that's a shame.

In the back of this, when you get this, you'll see a few letters from some different people. There is an article in here—and I only saw this this morning. It says, "Baden Inventor Primed to Tackle the Canadian Market." Isn't that something? Here's a guy from Ontario who—from the article it looks like this is a real job. He's going to tackle the Ontario market. That should be where we are first.

But if you ever come to our plant, go where the tractors are going out and you'll see that 90% of the sales are where the incentive programs are to the retail buyer, to the end user. I'm grateful for all your money and I'll take more if you want to give it to me, but we need to give that money to the doubtful buyer who doesn't have access to the things that Bill Gates or the Hudson River power or Alabama Power or New York state power have. What I put together was a proposal where, in year one and two—and remember, our sales in Canada aren't even 10%; I hope they're higher when we do this—it's 25% federal incentive to the buyer and 25% provincial, in order to jump-start this thing into Canada. That's when our sales are low. Then, in year three, it drops right down to 20%, then to 15%, and then to 10% and 10%.

Those percentages are less than natural gas. My wife bought a new natural gas car, and do you know what? She got a \$2,000 incentive for buying it, which she had to send in. The pollution is only reduced slightly on a natural gas car—it is reduced, however—but a \$2,000 incentive? We also got an electric lawn tractor on which the subsidy was a grand zero, and it's zero pollution. Remember, a John Deere or Kubota driven for one hour pollutes as much as a car driven 1,000 kilometres. If you forget everything else I've said, just remember that. That's why there's an article in here and the first thing it starts with is, "Don't run your lawn mower." A push mower with a gasoline engine pollutes as much as a car driven 800 kilometres, because there aren't catalytic converters, there aren't all those things. I get really annoyed when I hear government say, "Guess what? We're going to make everyone with a lawn mower tractor put a catalytic converter on their polluting engine." Forget it. Just pass emission laws.

The other thing is, in Parliament in Ottawa their tenders now say that a mower mowing at Parliament Hill can only have 60 decibels of sound and not over, because

that's all ours are. If you're 10 feet away, you can't tell if the mower is running or not running.

We're running out of time, aren't we? The other thing is, the pollution is zero. A lot of people say, "Yes, but you have your pollution at the source." Government can control that. The beauty of it is you have no pollution where all the people are.

I think what I'll do is stop, because I know there have got to be questions. Look through here and come up to me afterwards or call up our Web page, or I'll give you Hal's name. I really want to follow through with this. This is really important. This is made-in-Canada technology, and it's high-tech. If you are anywhere in the Kitchener area, call me personally. We don't allow tours in the plant right now but I'll take you to the plant and you can drive this tractor. It's absolutely unbelievable. We have a caster pad we put under the steering and we can drive all over, even on carpet without damaging that carpet, with the wheels in the air that high. That's how perfect that electronic differential works.

The Metro Toronto Convention Centre here—I don't know how far they are from where we are here—has two of them. If you go in there and see them going over, the scoop has brooms built in the bottom and rollers that it runs on. They will pay for that unit in three months. Before that, they were violating a city bylaw, using propane units in food preparation areas. They just love their little outfit. I only have one brochure on the Toronto convention centre, but make sure you look at it. Make sure, if you go to the convention centre, that you see the unit working. It's absolutely phenomenal.

**The Chair:** Your 20 minutes are up. Thanks very much for coming and presenting to us the intriguing information on electric tractors. Certainly there's a lot of pollution particularly from two-cycle engines in our built-up areas.

**Mr Gingerich:** There's no question-and-answer?

**The Chair:** The 20 minutes are up. I'm sorry.

**Mr Gingerich:** OK, we'll see any of you, or you can call us.

#### INDEPENDENT POWER PRODUCERS' SOCIETY OF ONTARIO

**The Chair:** Our next presenter is Jake Brooks, executive director, Independent Power Producers' Society of Ontario. You have a total of 20 minutes here. What's left over from your presentation will be divided among the committee members. Please state your names for Hansard so we get them down accurately.

**Mr Jake Brooks:** My name is Jake Brooks, executive director of IPPSO, the Independent Power Producers' Society of Ontario. With me is Rob McLeese, past president of IPPSO. I have a PowerPoint presentation, if possible.

**Clerk of the Committee:** Do you have your computer? You have to have your computer.

**Mr Brooks:** Oh, I didn't bring the laptop, just this. I guess we will go with the handouts. Did people receive copies of the handouts?

**The Chair:** That works even better.

**Mr Brooks:** OK, great. Thank you for inviting us to be here. I'll explain a little bit about IPPSO and then explain what we're here to say.

IPPSO represents many varieties of power producers, both large and small, some using conventional fuels and some using alternative fuels with varying degrees of greenness. IPPSO members have diverse opinions on many subjects but we all agree on the need to improve the conditions for investment and to make the electric system more competitive, more like an open market, as we trust things are moving in that direction in Ontario.

IPPSO represents the interests of many members. We represent in fact most generators in Ontario other than OPG who either have or are contemplating installing generation in Ontario. The views we express today are the views of IPPSO as a consensus of the organization. It may not necessarily represent the views of any individual members but of the group as a whole.

Overall, IPPSO is quite pleased with the movement toward an open market in Ontario and intends to support improvement of the system within the current market design, as put forward in the various consultative processes that have led to plans to open the market on May 1. IPPSO's central focus is on investment, getting investment placed in Ontario in generation capacity and making sure that the investment process is efficient and consistent, of course, with public policies.

Although we've been invited to comment on a wide range of subjects, we have chosen to focus instead on a relatively narrow focus, which is the renewable portfolio standard, perhaps the pre-eminent method we can see at the moment for improving the environmental impact of electrical generation. In short, it's referred to as RPS, and you probably heard a thing or two about that earlier in the committee process.

The first slide I've distributed notes that energy challenges appear very daunting. We have conflicting expectations to deliver low-cost, reliable energy, with increasing expectations for environmentally friendlier options to become more commonplace and, similarly, expectations on industry to meet social responsibility standards without overly encumbering the investment process. These are significant challenges to reconcile but we are pleased to say that we do see solutions. There are options that will allow for both sets of expectations to be met.

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IPPSO tends to emphasize that the investment process is where the most important decisions are made. It's the most important place to focus policy attention. We have been frustrated as consumers and advocates many times in the past by attempts to address energy issues on a short-term basis; they almost always prove frustrating. Investments are a long-term process, and if policy focuses on that, you've got a much better chance of having the policy impact that you intend.

Making investments more efficient is a win-win situation for the producer and the consumer and for

society overall. A more efficient investment process is one where there is a higher degree of predictability and more confidence in market conditions not changing precipitously. If the rules stay the same, that lowers the capital cost of the electric generation, which lowers the cost for industry and consumers and makes the economy more competitive. Producers are quite pleased if we can make lower-cost investments. We don't benefit when the costs of investment go up.

So a focus on the investment process is critical, mainly because electricity is highly capital-intensive. It's one of the most capital intensive parts of the economy. The cost of capital is a significant part of the cost of the electricity that we use. Ultimately the cost of power is proportional in large respect to the cost of the capital behind the investments.

Shorter-term, a focus on the investment process can reduce costs as well because the better the environment for investment, the more capacity will be available to bridge through periods of price volatility. In other words, a plentiful supply of capital means a plentiful supply of capacity to produce electricity, which means that during periods of price volatility, the local prices will be less frequently affected.

In any case, I want to move forward to our core advice. This is the same advice we've given many different forums: don't change the rules in the middle of the game. Electricity investments are long-term investments. It's important, therefore, to be able to see five, 10, even 20 years into the future to get a reasonable assessment of what returns are likely to be for a new generation investment. The most beneficial investments are usually those that are made with the longest-term financing. In the end, the lowest cost results from long-term financing, and not just lowest cost but more stable prices result from long-term financing.

One important corollary to this general principal of not changing the rules in the middle of the game is: don't give investors any reason to think you're likely to change the rules of the game; don't give them any reason to doubt that the rules might not stay the same. It would lead to uncertainty, unwillingness to invest and higher costs for consumers and everyone.

IPPSO wants to ensure that any mechanism introduced in Ontario is as close to truly competitive as possible and focuses on addressing issues that may distort the market or impede progress toward a fully open market. The mechanisms we propose are, like many others, based on the concept that we wish to minimize government intervention in the market unless there is an exceptional case, places where the market is not capable of correcting by itself. One of the few examples where the market is not altogether able to look after adjustments by itself is in the area of environmental costs. These are costs that are not normally borne by the producer. They are normally externalized on society, sometimes called "externalities" for that reason.

You may have heard this discussed, so I'm going to skip over this part briefly. Essentially, the sole justifica-



tion for moving away in any degree from a pure market mechanism is to correct for the absence of recognition of environmental costs. To the extent that they are externalized on society, we need to find a mechanism that essentially puts them back in so that they are not imposed on consumers any more than need be and so that investment decisions are made in light of the full costs of electricity.

This is no different in principle than the emission standards that are imposed on power plants. They are set via government agency at the level deemed reasonable for protecting public health, and the costs are therefore internalized into the generation investment. We want to know as far in advance as possible what those environmental costs are likely to be so that we can make the appropriate investment assessments. This is one of the reasons we turn to RPS: because it's very good at providing the long-term certainty in terms of how environmental costs will be recognized and viewed into the future.

The slide you're probably looking at now is called "Major Options for Improving Environmental Characteristics of Electric Generation." Obviously, the first one is emission limits. They've been used for a long time. The problem with that is that one can't plan very precisely on when government is going to decide to tighten the emission limits or, in some cases, loosen them, I suppose. If we knew that in advance, we'd have a better ability to plan investment.

Another major option that is in use in other jurisdictions, and I think is now part of the federal budget, is production incentives for cleaner generation, most commonly associated with wind energy, I think. There are other tax incentives. Capital cost allowance and flow-through mechanisms have been used in Canada to a great extent and are largely effective, although they have not by themselves been able to make a major change in the environmental impact of generation. Obviously, subsidies are a possibility too, but that's not where we want to focus our attention.

Green procurement: that's when governments or other agencies deliberately choose a standard to which they will adhere in terms of the content of their electricity supplies. The city of Toronto, for example, has announced it will procure a certain percentage of its electricity from green power sources. Other governments have done similar things.

The last mechanism mentioned is RPS. It's the one we're hoping to focus the most attention on. Just to give you a quick overview of what is meant by RPS, renewable portfolio standard, it's a content requirement in the supply of electricity that I would liken to the requirements for cleaner gasoline. We have put requirements on gasoline that there be reduced amounts of lead. Effectively, this standard applies to all gasoline sold in the market and does not dictate the price, who manufactures it or where it comes from. It leaves the market to determine everything except the initial standard. RPS is similar to that sort of mechanism, essentially requiring

that electricity meets certain standards such as EcoLogo's standard, which is commonly thought of as the definition of green power in Canada. Electricity reaching that standard must comprise, say, 5% or increase by 1% per year, as an example, of our electricity supply. That would be an example of an RPS, moving to increasing percentages of green power, meeting certain definitions.

We have distributed with your handouts a proposed rule. It's at the back of the slides. It starts with the text, "Renewable Portfolio Standard (RPS), Proposed Rule, January 21, 2002."

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This is a rule we put forward for consideration that has been developed in consultation, of course, with our own members, with other stakeholders, with people in government and with other energy organizations. In other words, this is a rule that represents a fair bit of consultation and development. If this were adopted, it essentially would require that retailers in the Ontario electricity sector demonstrate at the end of each year that they have purchased a certain minimum amount of cleaner energy—green or renewable—as defined in the rule and that that percentage increase by reasonable and realistic amounts year by year.

I guess the reason we put an emphasis on the RPS is, as I mentioned before, that it causes the market to look long-term in its investment, to actually anticipate what will need to be done to meet the environmental standards of five and 10 years from now and make purchases on a long-term basis, which is very good, as I mentioned, in the electricity system.

So it stimulates new investment in cleaner technologies. It creates longer-term stability in the green power market. It doesn't determine prices. That's still a market mechanism. It doesn't even determine supply in the end. Pretty well everything that is normally determined by the market continues to be determined by the market with an RPS, with the sole exception of the content standard.

Another important benefit of an RPS is that it creates competition between suppliers. It would be a poorly defined RPS if you had just one supplier in the market able to meet the standard. We have faith that there will be competition and price competition to meet the retailers' needs to source adequate supply to meet their obligations under an RPS.

The other important virtue of an RPS is that it meets overall environmental standards very well. There is measurable change in the environmental impact of generation that is usually quite significant and positive. You can see new investments going in, and the average emissions of the electric system going down. Normally with an RPS, these mechanisms are positively supported by groups outside the electricity sector, because the physical results are so noticeable.

We've included a table that is IPPSO's proposal on RPS recommended RPS values. That's in your handout. These are, I think, a reasonable and modest example of how an RPS might be structured and how high it would

be expected to run in Ontario. The numbers here are designed to absorb a significant amount of the recently installed renewable generation capacity in the first couple of years and gradually stimulate the construction of new renewable generation capacity over the eight or so years the RPS would be anticipated to run. By the end of the RPS, under this proposal, there would be about 940 new megawatts of renewable generation in Ontario. But those are based on projections that assume a number of things about load growth and investment patterns. There are any number of details that are probably worth considering. In other words, there are checks and balances that might cause these numbers to adjust a little bit one way or another.

We're looking forward to some further discussion—perhaps a lot of discussion—and development on mechanisms like this, but we certainly hope this committee and other arms of government can put a strong focus on the RPS as a mechanism to move forward with in the competitive market. With that, I hope I have come pretty close to being on time.

**The Chair:** You're very close to being on time. I'll give maybe a minute to the official opposition.

**Mr Gilchrist:** You gave all the time to that party last time.

**The Chair:** I did?

**Mr Parsons:** You cannot challenge the Chair.

**Mr Gilchrist:** I'm not challenging; I'm just educating.

**The Chair:** I don't recall that happening.

**Mr Parsons:** You're right, Chair.

A question for you, and maybe it's very simplistic: energy electricity is a North American commodity that will be shipped all over the place. It may, if it comes into Ontario from the US, have passed through three or four different owners at that time. Say I'm committed to green power. How do I know I'm getting green power? Do I count on Enron to tell me? How do I know I'm getting it?

**Mr Brooks:** There are a number of mechanisms proposed for certification of green power. It's pretty straightforward to certify it at the source, of course. Your question is more about how to make sure that the power the retailer supplies is from the particular source. That requires essentially a system that has a little bit of auditing capability. We've explained some of that in the proposed rule, and it certainly is workable. But you would need to put administrative mechanisms in place that ensure that the power from a given green facility is only sold once by any number of the retailers who may be operating in the market.

**Mr Rob McLeese:** As long-term contracts come in place.

**Mr Brooks:** Yes, long-term contracts are very helpful.

**The Chair:** Thank you very much. Your time is up. We appreciate your presentation.

#### COMMITTEE FOR SAFE SEWAGE

**The Chair:** Our next presenter is Karey Shinn, chair of the Committee for Safe Sewage. Thank you very much

for coming forward. You have 20 minutes set aside for you. After your presentation, whatever time is left will be divided between the two caucuses. Please state your name for the sake of Hansard.

**Ms Karey Shinn:** My name is Karey Shinn. I'm the chair of the safe sewage committee.

I'm here today to make some observations based on our 10-year involvement with all aspects of water and sewage treatment in the city of Toronto and to offer you some cautions, ideas and opportunities.

I have three concepts here. One is that water is a hydro resource, and this includes storm water, drinking water, and sewage and effluent as it moves through our communities. Second, the best energy we can create is energy found through conservation. Opportunities exist for many sectors to receive credits for conservation and small-scale innovative applications of solar energy. Third, there are two distinct camps in the environmental movement: there are those who fight toxics such as pollution from incinerators and chemicals that are in our environment, and there are conservationists, who are dedicated to restoration and preservation of habitats, country heritage features and natural environments.

Wind turbines are creating serious siting problems, because the proponents of wind energy do not respect the hard-fought playing field of the conservation movement. The business of wind energy has no right to annex and ruin pieces of habitat that have taken conservationists and naturalists generations to create.

Hydro power from water and sewage sources: every day, 818 million litres of wastewater, roughly one twenty-fifth of Niagara Falls, drops 125 feet to 325 feet down over the old Iroquois shoreline to the Ashbridges Bay sewage treatment plant in Toronto. When it rains, 10 times that volume of storm water runs into the creeks, streams and rivers that flow through Toronto, scouring the riverbanks and flooding the Don Valley Parkway at the mouth of the Don.

No water is a waste. Water is a resource. Hydro-electric power could become an integrated part of the design of our water delivery, sewer and storm water systems. As outfall pipes become deeper and longer, increased opportunities are created to offset capital and operational costs.

In Boston, their 9.5-mile-long new outfall pipe for the new Deer Island sewage treatment plant was designed with Acres consultants. The outfall pipe drops 350 feet directly below the plant before it heads out toward the ocean, generating 700 kilowatts of instantaneous power—that's more than a wind turbine—the equivalent of 500 households per month of power. Boston also collects hydro power when their drinking water is released from their reservoirs and into their aqueduct distribution system. This hydro power produces three megawatts per year, or the equivalent of 2,250 households. This revenue offsets the costs of their infrastructure. For more information contact Sam Baker, Deer Island Treatment Plant, Boston, and there's the number.



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Storm water could also be harnessed for power. At the same time it resolves storm water treatment and reduces flow rates to creeks and streams.

Here in Toronto, the Western Beaches storage tunnel was exempted from the environmental assessment process for no good reason. It is the most energy-inefficient process design. Three 30-metre-diameter shafts will receive up to 85,000 cubic metres of runoff that will plunge 60 metres to the bottom. Solids are not removed at the top; all the solids will have to be pumped and flushed from the bottom. The design provides for no turbines to take advantage of all this water pouring down. We will pay hundreds of thousands of dollars every year to pump out and flush this project.

The North Toronto sewage treatment plant is also ideally situated, in the Don Valley at the bottom of the old shoreline, to generate hydro power, very possibly, especially from combined sewer overflows and storm water. Currently, the problem is trying to slow the water down.

While I'm on sewage, I'd like to speak about biogas. While your document speaks to energy generators, there should be another responsible party, identified as the fuel generator in contrast to the energy generator. In this case, whether it is an industrial scale hog or cattle farm producing manure or municipal organic waste, there should be an obligation on the part of the fuel generator to choose energy generation projects that produce the cleanest use of these fuels for energy. We agree with the comment on page 16 of your report that environmental limits for pollutants should be tightened to promote clean energy technologies. We also agree there should be rewards for clean energy. There should be penalties for choosing to create unnecessary dirty fuels.

This would mean that, taking into account the list of criteria pollutants with adverse health effects, such as nitrogen dioxides, carbon monoxide etc, on page 13 and 14 of your report, producing methane as a fuel from biological waste is preferable to thermal processes that oxidize and increase productions of those criteria pollutants and create many carcinogenic compounds as well.

It might be an advantage to reduce the costs to farmers and increase the revenue for communal sewage works to provide sites for farm animal biogas production in digesters, run alongside sanitary sewage digesters by licensed operators. The farmers could obtain energy credits and the sewage works would have a local energy source. This would create a controlled land application program of both manure and biosolids, where the coli-form counts are controlled and tested to prevent runoff or groundwater contamination.

Safe Sewage also maintains that the constituents in sewage sludge after methane has been recovered are nutrient-based soil amendment and not a fuel. It is imperative that nitrogen, carbon and minerals are not converted to air pollution through thermal processes when we are losing so much topsoil every year and it takes hundreds, if not thousands, of years to regenerate those resources as soil.

We have a policy recommendation: please phase in clean technologies first, not disposal technologies for wastes.

It is imperative to provide the research and development for pilot projects to establish regulations for new and emerging technologies.

Many of us were shocked at a works committee meeting at Toronto city hall a few weeks ago when some company claimed they would provide a gasification process for all the city of Toronto residual waste from garbage processing. No technology can be called "emerging" starting at 400,000 tonnes a year, but this is what they were claiming. Not only was this taking the technology for granted, it was also taking the host community for granted given the long-term problems already inflicted on the South Riverdale community and the port land from 100 years of industrial abuse and pollution.

We support the establishment of a specific alternative fuel/research development program. This would protect large users, such as municipalities, who are not equipped to do research and development from wasting tax dollars on projects that get a hard sell but end up becoming serious financial risks, lacking approval by the province for regulations and monitoring requirements. This happens too often. We have witnessed many regrettable pilot projects and expensive contract buyouts when they fail.

A serious protocol is required to be set up by the province to ensure that emerging technologies emerge at the scale and with the regulations required to ensure that public health is not compromised. The first option that the city should be obliged to look into would be recovering methane from a digestion process. This would reduce the mass significantly while at the same time producing a cleaner fuel.

Criteria for research and development should be designed to prevent municipalities from being exploited by adventurers. Municipalities do not have the in-house knowledge or experience to undertake research and development. This is much better done by industry and technology leaders, coupled with university researchers, to develop the best applications for available resource recovery and fuel development for energy. This also allows time for proper regulations and a monitoring protocol.

(2) Incentives, energy conservation and new energy partners: the very best energy source is conservation. Credits for conservation belong not just to the energy generator but also to the person or corporate body providing and paying for the devices. If Home Depot were to sell and install a solar panel, they and the owner should get some sort of credit, renewable every five years if the panel is still operational. It would be interesting to have computer sales companies or Bell install the computer hardware or services and the solar panel to power it all at the same time.

The beer industry could get energy credits for a "trade in your old beer fridge" replacement program and probably lower the electricity bill in every third house in

the province, including cottage country. The soft drink and beer companies have these fridges with replaceable fronts that look like canned product that they could retail. The beer stores take great pride in their reuse and recycling programs and might find energy credits a good incentive.

Your MUSH sector would be a good market to focus for major conservation because they represent huge energy users under single administrations, paid for in tax dollars. The biggest users on the Toronto grid, for example, are the University of Toronto, with 40,000 people on campus, and the city itself, the sewage treatment plant being its biggest take off the grid.

(3) Wind turbines, alternative energy and the environmental movement: there is a need to bring back the criteria we used to have for projects that might be exempted from the environmental assessment process. Appended to the back of the top eight things I handed in is an extract from the old exemption criteria.

The assumption that all green energy has to be accepted without qualification or impacts is not acceptable. This is what has happened with the siting for wind turbines on the Toronto waterfront. In particular, we take issue with the turbine that has been approved for the Ashbridges Bay sewage treatment plant site. Aside from the fact that it happens to be sited at the intersection of two North American migratory flyways, it also happens to be smack in the middle of the next space available to expand the Ashbridges Bay treatment plant to accommodate the waste water treatment needs for another one million people, according to the new official plan. Wind turbines are sensitive to nearby land uses and structures that create different types of air temperatures or may block the wind.

It is difficult to imagine anything more inefficient to the planning of a sewage treatment plant expansion than to have a huge structure with a deep base that will have to be tunnelled around for pipes and tankage and compromise what can or cannot be built. It is our studied opinion that new energy technologies such as wind turbines, however green they are, must respect the function and efficiency of utilities and not simply assume that all utility sites are available for them.

Research and development is required to find wind turbine technologies other than these huge industrial-scale monsters that may be better suited for urban use. We point out that we already have a lot of tall buildings. Maybe they could go on top, or numbers of smaller turbines could be mounted on the sides of downtown tower blocks like satellite dishes and take advantage of the wind tunnels we have already created at Bay and King.

We understand that NASA has a GIS plan that identifies the best sites for wind generation on the planet. These should be located and addressed first.

The dilemma with wind turbines will require more consideration than is currently being demonstrated. There are two schools of thought on the environmental front. One group is focused on reduction and elimination of

toxics in the environment. The other group is dedicated to conservation activities. Conservation includes preserving many aspects of the natural environment, including birds, habitat and countryside.

We realized this dilemma when the Toronto Renewable Energy Co-op conducted what amounted to a pathetic site search in Toronto. Besides the unfortunate and unwindy choice of the Ashbridges Bay plant—it was 11th out of 12 in their sites—they also considered Colonel Sam Smith Park, a small protrusion of land in Etobicoke that had been fought for for over a decade by locals to put back some small piece of habitat in that part of the waterfront. The wind turbine co-op decided it was perfect for them. Fortunately, that did not go forward.

Siting turbines will continue to present problems for communities. Given that one turbine is hardly worth the effort, there is always the fear that one will lead to a dozen more nearby, and who knows what after that—a mess.

It has happened in California that wind generation is basically an unreliable form of energy, requiring backup by another fuel source to guarantee that the energy will always arrive on the grid. Although wind power seems like a very nice idea, it is not a passive land use, physically or visually. So although everybody likes the concept of green power and wind, it is not progressing the way it should at this time.

Emission trading: one problem we wish to point out is that this system has the potential to backfire when a number of industries are located in the same old industrially zoned areas. Some neighbourhoods have had over 100 years of industrial abuse. The land is poisoned, the people have higher rates of morbidity etc, and still the proposals get bigger and continue to grandfather the emissions and health risks. Along with emission trading, there must be some siting criteria that do not allow credits to create unacceptable risks to the environment or to animal and human populations. Any emission credit should be a nominal one-time credit or renewable after a five-year review to prove the initiative is still operational.

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We often come across situations where companies or industries have been given certificates of approval and there is no review done to know if their equipment has been updated or their emission control devices have been upgraded in a way that reduces emissions; they may in fact be creating more. So we have been living with the bad experience in Toronto of a lot of grandfathered land use.

**The Chair:** Thanks very much for your presentation. We have approximately two minutes per caucus, beginning with the government side.

**Mr Hastings:** Ms Shinn, I appreciate your concerns over wind energy, particularly with the Etobicoke venture and probably the one at Ashbridges Bay. But we as a committee saw, in my estimation as a layman, a very well-sited, well-mapped-out example producing nearly 300 megawatts of power at Pincher Creek, Alberta, a few days ago. It's the newer technology, computer-based.



The only problem is, as usual, Canada is the net importer here.

My question to you is, given that the siting and mapping in Alberta was done, I believe, under environmental assessment statutes in Alberta, would you still have these strong reservations about wind power if you didn't have your experience with the Ashbridges Bay experience? As well, statistics from StatsCan show—I could stand to be corrected on this as the source—that the number of birds killed in the Pincher Creek situation in southwest Alberta was minimal. I can't remember; it was infinitesimal. One bird, in your estimation, would be one too many, I suspect. But at least they had made a very coherent, strong effort to ensure that wildlife, birds especially, was not a casualty of that new technology. Your comments, please.

**Ms Shinn:** I'm glad that in Alberta they actually did an environmental assessment. Here it was exempted from the provincial environmental assessment. They conducted a federal EA because it was on the waterfront. This happens to be one of the very few sites, at Ashbridges Bay, where you actually have the intersection of two migratory flyways, one that comes in off the lake from the south along the Leslie Street spit and then the shoreline migration that the raptors use. To us that really stank that they could just put it there and then somehow say, "It's only going to kill one or two birds." There has to be some respect for the airspace, if you like, that is used by migratory birds. We know from records at Ashbridges Bay that the sky used to be black with migratory birds for days on end not even 100 years ago, within a lifetime. We don't have that any more.

If we begin to discredit the validity of preserving these flyways, we are asking for trouble. I do think there are many, many spaces in Canada that would be suitable for turbines. Myself, if I were to look at the sewage plant, I could probably think of a number of ways we could produce as much energy by simply making our sewage plant more efficient, using that property more effectively, rather than siting a turbine on that property. I am concerned about the exemption that this was given; otherwise, the migratory fly routes alone would have identified this as a caution.

**The Chair:** Thank you very much. We'll move on to the opposition.

**Mr Bradley:** The proponents of wind power have asked for special consideration under the Environmental Assessment Act dealing with the issue that you have raised with us, saying they shouldn't have to go through the same hoops that perhaps production of other kinds of power would have to go through. Do you believe they should have exactly the same rules as other methods of producing power?

**Ms Shinn:** I think they should have a lot of similar criteria, especially on the siting issue. The other problem is that if these large, industrial-scale turbines are not redefined in terms of the kinds of communities they're being put in—I think we have not seen the generation of urban turbines that we could have that would integrate in

our current land use in the city. These enormous turbines are being imposed on us—the bigger, the better—when in fact I'm not convinced, and I'm a graduate in art and design, these have been thought out in the context in which they want to plonk them down in the city of Toronto, for example. I do think that we are going to have a growing backlash from the conservation movement, the long-standing, hard-working, elderly people in many cases who literally have fought for a generation to get small bits of habitat preserved that are now going to be targeted as sites.

I'm very concerned about what this is doing without some criteria for siting. I wouldn't exempt them from the whole act.

**The Chair:** Thank you very much for coming forward and presenting to us.

## ENSYN TECHNOLOGIES

**The Chair:** Our next presenter is David Boulard, vice-president of finance, Ensyn Technologies.

**Mr David Boulard:** Thank you very much, Mr Chairman, and thank you, members, for taking the time to meet with me. I'll start by just reading the mandate that I fit into with respect to this committee to kind of put it into perspective. The committee's mandate was "to investigate, report and recommend ways of supporting the development and application of environmentally friendly, sustainable alternatives to our existing fossil fuel sources."

What I'm going to present today is in fact that: an environmentally friendly, sustainable alternative to an existing fossil fuel. Twenty minutes isn't very long to give good detail as to the progress we've had with this specific technology, but I'll try to focus it quickly.

The first slide in the package I've given you—I've put the slides at the front with some reading material and some technical material—basically outlines the four biomass conversion technologies. I believe three of them have already been presented to this committee. The first technology is direct combustion: that's where you take biomass—being wood, agricultural residues and other renewable types of agricultural products—and you direct burn them in fire; for example, wood in your fireplace.

Biochemical conversion is conversion using enzymes, such as the production of ethanol, where you take a feedstock such as corn and you add enzymes to it to break it down, creating a gas, which is ethanol.

Gasification was mentioned. Gasification is simply the vaporizing and then combusting of biomass products.

Today what our focus is, and what I believe this committee has not heard, is that there's a fourth technology, which is called "pyrolysis." Pyrolysis is effectively the liquefaction of biomass.

Quickly, by way of summary, on the second slide, Ensyn Technologies is an Ottawa company. This is an Ontario-grown technology that we're talking about today. The main members, Dr Robert Graham and Barry Freel, were educated at the University of Western Ontario.

They took their background and their Ontario education and applied it to very interesting technology. Through research and development, and a lot of hard work, they commissioned a first plant in 1989. Unfortunately, that plant was commissioned in the United States as a result of different commercial and industrial partnerships they had made.

The technology I'm talking about today is a commercial technology, and I want to make that clear: this is not a research technology, it's a commercial technology. You may ask, "Why haven't we heard about this before?" I trust I'll answer that question later.

Skipping briefly to the technology, what is the technology? Effectively, what we do is a very quick heating of biomass material. What happens is that the biomass—for the purpose of illustration, we'll take sawdust or wood waste residues from forestry companies; we could also take agriwastes, cornstovers etc. What happens in this process is that it is quickly heated and vaporized. The carbon remains behind and the vapours are carried to condensing towers. The condensing towers do what they're supposed to do: they condense the vapours into a liquid.

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It can convert a variety of feedstocks into fuels. Basically the yield of this technology is, for example, that it takes a ton of material and produces three quarters of a ton of liquid. It's a very quick process that has an extremely high liquid yield. The other by-product streams are gas, which is used within the process itself, as well as a carbon material which can be used for either filtration purposes or as an energy supplement as well. This is included in a chart within the material I've handed out.

You may say, "Why the benefit of a bio-oil type of material?" One of the difficulties we've had with renewable types of projects is the ability to adapt conversion or generation equipment to use the material itself. The other thing is that with renewable sources you also have the difficulty of having a mass of material in a remote location that cannot be easily transported to a market where it can be used. What bio-oil does and what our process can do is it's a very modular process. It can be located in varying degrees of size. It can be located on-site where the feedstock is. The feedstock can be processed on location and the bio-oil can be transported. It can be transported in a tanker, whether rail or truck, to facilities that can use the material.

What we've got today are many forestry residue situations where forestry residues are not used, they are landfilled. You don't have to go up into northern Ontario to deal with forestry residues. You can probably go to the city of Toronto and determine what they're doing with city residues such as tree trimmings etc, where they're chipped. There are only so many chips that can be used in city gardens and parks.

The application of what bio-oil can be used for, of course, is in many degrees. What I look at, for example, is in the coal-firing utilities that exist today, high sulphur

problems, a high degree of pollution issues. Through the introduction of a bio-oil supplement into these, you get a proportionate reduction in these types of emissions, as well as using a resource that's readily available, renewable and sustainable.

Currently we produce a little over five million gallons of bio-oil a year. A lot of it is used for energy applications. Some of it we've identified as high-value chemicals. So the economics of our process rely on two streams: (1) an energy stream, and (2) we've unlocked a revolutionary raw product stream that hasn't existed in the past. Believe it or not, one of the products that is derived from our system is in fact ingested. It's a grill flavouring for foods. Again, we produce a little over five million gallons of bio-oil a year, and that's a relatively small amount.

You will notice in your handout there is one of our standard facilities as well. It's running 80 green tons of feedstock a day. Again, you'll see its modular size with respect to the individual that's illustrated in the picture.

I've also included barriers and recommendations.

Again, 20 minutes isn't very long to try to introduce a new technology, but what I do want to cast on you is that there is another alternative renewable fuel to ethanol, to gasification, to direct burn, and it's pyrolysis oil. Pyrolysis is a technology that is commercially feasible and commercially proven, and I'd be happy to show you to a facility by which pyrolysis liquids are produced. The economics of a pyrolysis facility—we've been fortunate to be able to drive an energy component as well as a commercial product component. It's real and it's alive today.

The barriers and recommendations I will not voice today, but they are clearly outlined in the presentation. I will note that from the energy perspective it is a challenge. Where petroleum prices are where they are today, where electricity prices are where they are today, it's difficult on a renewable energy component to make the economics work.

I'd like to end my presentation there and thank the members and the honourable Chairman for their time. If there are any questions, I'd be happy to take them.

**The Chair:** We have approximately two minutes left per caucus.

**Mr Bradley:** You mentioned that not too many people would be familiar with this. I'll ask you a provocative question so you can give a nice answer.

**Mr Boulard:** Go for it.

**Mr Bradley:** Our committee will have a number of people come before it with what I refer to as the magic box that nobody has ever discovered. I can recall in a previous incarnation—or incarnation, one of the two—being presented with a number of magic boxes that never really went anywhere. Why would the committee embrace yours? Give us another little plug on why the committee should embrace yours and perhaps include it in final recommendations to the government.

**Mr Boulard:** That's a good question. The reality is, I can do what I say. I'm not talking about a magic box; I'm



talking about an industrial process that exists that I can show you a 10-year history of. It's a process that has been proven, and we currently have five commercial units in process. I'm currently designing a 120-ton-a-day unit.

**Mr Bradley:** These are not demonstration, these are commercial—

**Mr Boulard:** These are commercial units. They have 90% availability etc. I could bring you down to see one. That's the distinction. I'm not talking about a product that I may be able to produce; I'm talking about a product I am producing. The distinction is the different applications. You will notice in your packages that these applications are extremely broad. I'm talking about a petroleum application at the same time. I think to answer your question, that's the distinction. I'm not talking a magic box; I'm talking a proven industrial process that's commercialized.

**Mr Bradley:** You mentioned that you may be able to use it in conjunction with coal-fired plants. There are a number of recommendations coming before this committee that would involve getting rid of coal-fired plants and replacing them with something else—gas-fired or something else perhaps. Does that eliminate a substantial use of your presentation or does it not?

**Mr Boulard:** Not at all.

**Mr Bradley:** Yours is very broad, isn't it?

**Mr Boulard:** It is very broad. I look at the coal-firing opportunity as being a migratory issue. If in fact it's in the best interests of this committee to recommend the elimination of coal-firing, there will have to be a migratory process in any case. What I'm offering is a solution whereby bio-oil can be utilized to improve the environmental impact of coal-firing facilities. In fact, we have coal-fired, and I've included a report in that regard in your package.

**Mr Hastings:** Mr Boulard, thank you for coming in. It's a very intriguing type of technology. As Mr Bradley says, you do get presented with things that would need a lot of investment, but here you already have a direct application. Give me a sense of the profile of the customers you already have. Would they be industrial users in a number of areas, large control-process operations in industry?

**Mr Boulard:** They are. Exactly.

**Mr Hastings:** Do you see this application of bio-oil being used in the transportation sector? I take it that it's not very widely advanced yet.

**Mr Boulard:** That's correct.

To answer your first question, yes, we do have industrial applications. What we have in Ontario is a lot of low-value feedstocks available that corporate Ontario and industry Ontario have to recognize and are pursuing ways by which they can add value to their feedstock streams, whether that's an agricultural process or a forestry process. We offer that. We offer the key to unlock that to an energy-efficient, less capital-intensive way to generate power for their industrial needs, whether

that's steam or whether that's electricity through turbines.

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From your second point, we do foresee a transportation application. We have worked with Natural Resources Canada in this regard to try to develop an emulsion similar to an ethanol-gasoline blend, which would be a diesel/bio-oil blend; again, "bio-oil" used in the "pyrolysis oil" sense. That is still in the development stage at this point.

**Mr Hastings:** Give us a sense of the type of investment experience you've had to get this company to where it is. What kind of investment incentives do you think are required that this committee ought to recommend to the government to get this type of technology more into operation? Would you also address the emissions concern here?

**Mr Boulard:** To answer your first point, with respect to how to get this technology out, I think the committee needs to broaden—well, I should be careful there. This technology has application on an energy side beyond electricity generation. There's two fronts: using a low-value feedstock by generating power, power being whether it's steam power used for industrial purposes, a more efficient use of feedstocks or electricity generation.

What's easy to do is recommend and provide incentives based on kilowatt hours. I think a bio-oil type of incentive can go beyond that. It can go beyond that type of application.

**Mr Hastings:** So it would be a production-type credit.

**Mr Boulard:** Exactly, a BTU credit. Now, I recognize the pitfalls that exist in that regard with respect to direct-burn types of technology etc.

**Mr Hastings:** Limited to five years or three years, something like that, not going on forever?

**Mr Boulard:** Yes, that's right.

Now, with respect to the emissions, the emissions are interesting. We are a sulphur-free fuel; we do not have sulphur. We are also CO<sub>2</sub>-neutral in the sense that when the CO<sub>2</sub> is released, it's reconsumed in a natural setting. When bio-oil is burned, there is relatively no particulate. I've also included in your package a more detailed analysis, because I don't profess to be an engineer on the emissions side, on the emissions regarding the bio-oil itself.

**The Chair:** OK, thank you very much for coming forward and presenting to us. We appreciate your thoughts and comments.

**Mr Boulard:** Thank you.

#### JENEL MANAGEMENT CORP

**The Chair:** Our next presenter is Michael Katz, senior vice-president, Jenel Management. You have a total of 20 minutes. After your presentation, whatever is left will be divided equally. Please state your name for the sake of Hansard. The time is yours.

**Mr Michael Katz:** My name is Michael Katz. The company I represent is Scientific Utilization Inc, out of

Huntsville, Alabama. The company is a very interesting company. It was actually born out of the old Reagan administration's Star Wars. When they were testing all kinds of entry equipment coming from outer space, they came up with plasmatron technology. As the years went by, it went by the wayside, and someone in Alabama recognized that as a potential. They came up with the study since 1992 and developed the first unit, which right now burns medical waste. From the medical waste, they generate electricity through synthesis gas.

The interesting thing about the synthesis gas is, the way it's produced, you're dealing with temperatures of anywhere from 10,000 to 18,000 degrees Fahrenheit. Basically, any raw material that goes through it at the end of the day comes back to the periodic table. Your main product is your synthesis gas, which really replaces natural gas in the operation of the turbines, as well as steam. So you've got the two generations, both steam and synthesis gas. I feel this is something that should be looked at as a potential technology for an urban society like Ontario.

To me, the most important part of this project is the coal gasification. In my presentation, you have all the technical information that you need. It shows you basically how the plasmatron operates. But more important is the fact that it is capable of producing 30% to 40% more burnable gas from the same amount of coal than conventional methods. But more important is the fact that there are absolutely no emissions to the environment. That is, I think, an important factor.

One of the things we're studying in the United States is replacing the coal-burning unit that exists now in conventional systems with this system. The biggest unit that we have operating currently is a 15-ton-per-day operation. It's a portable system. Right now, it is just burning, as I mentioned before, medical waste, but our coal-cracking operation should be in operation in Huntsville, hopefully within the next three to four months.

Basically, what I wanted to do is come up here and present this project. Rather than going through the technical, because this is all technical—I could bring the engineer here, but I think it's best, if you've got any questions, I'll be more than happy to answer them.

**The Chair:** Thanks very much. We'll start with the government side. We have roughly eight minutes per caucus. Mr O'Toole.

**Mr O'Toole:** Thank you very much. This is your presentation here?

**Mr Katz:** Yes, sir.

**Mr O'Toole:** I just had a quick flip through. We've all heard the black box comment. The whole idea of incineration has a long road to go. A lot of people basically stop there because when you burn things—and what you're doing is gasifying various things.

Just picking up on Mr Bradley's earlier comment, how would we sell something like this? The words "incineration," "burning" or whatever—and I know it's very technical. They say there are no emissions and all the rest

of it, but how come it hasn't been picked up? I know you've got—

**Mr Katz:** No, it has been picked up.

**Mr O'Toole:** Yes, it has in the United States.

**Mr Katz:** Basically, what's really out there today, and it's all over the country, is called DC plasmatron, which is direct current plasmatron. The only thing that makes DC inefficient is just in terms of operating cost. When we came up with the alternating current plasmatron, it made it much more efficient. It brought the efficiency rating up to way up above 70%. It has really become more cost-effective and it's cost-effective that you can go into, say, sewer sludge, municipal waste, medical waste—anything that you can imagine that has some BTU content can go through this process. Just try to imagine: you're burning something at 18,000 degrees Fahrenheit. What's going to be left on the other side? You don't have to be a rocket scientist to understand that. Today, steel plants and coal plants are burning at anywhere from 1,500 degrees Fahrenheit to maybe 4,000 degrees Fahrenheit. Obviously you're going to produce oxygen, you can do the nitrogen and the oxides to the air. This has no oxygen in it at all at 18,000 degrees Fahrenheit. It eliminates any potential for developing any other chemical products. Basically what you're doing is you're reproducing the periodic table in its original element, and then obviously you're recovering that and then you sell that as an item.

**Mr O'Toole:** Is there any US federal government money in your project? Are there any subsidies of any sort?

**Mr Katz:** No, there are no subsidies. Basically we're working with some funds from the coal gasification project, the one that's in Long Beach, California. We gave them a hand with the technology they are doing over there. But there are no monies. We haven't asked for any money. So far, all of this has been developed by—I shouldn't say that. Let's face it. This whole technology was financed by the US government during the Reagan administration through their Star War programs. There is of course a lot of technology that's involved in here, but if you look at the names of some of the scientists who are involved in this, they paid their dues by working for the government for many years.

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**Mr O'Toole:** I guess you've got to convince me, not being a scientist myself—actually, the original question was, how do you sell this thing? Do you mean there are no emissions?

**Mr Katz:** How can there be at 18,000 degrees? It's all enclosed, totally enclosed. Right now we're working on two independent projects: one in Cambodia and one in Pakistan. Ask me why we're going to Third World countries. It's because, first of all, they have a huge amount of coal available to them and they're net importers of oil and are trying to avoid that. They're going to spend the money to generate electricity, which today runs—what is it?—close to \$1 million per megawatt, whether you build a power plant by conventional means or even if you go a little bit more exotic.



So they're beginning to recognize this technology. Thank God this technology has been proven and you can see some governmental agencies, with the awards and the recognition and the study, so it should give you a little bit more information as you go further into this.

My intention here was just to present this project to you guys, but I'm hoping that if there is more interest, I will bring the scientists and more people up with me next time and be able to give you a full technical presentation. Today was meant only as a first step.

**Mr O'Toole:** It's fascinating. We had a sort of similar one from a Canadian company, I think down in your riding—that presentation from the paper company.

**The Chair:** You're referring to Norampac. I don't think it's quite to this level.

**Mr O'Toole:** No, not these kinds of temperatures, but it's the same sort of thing.

**The Chair:** It's how they're destroying their Dombind.

**Mr O'Toole:** Yes.

**The Chair:** I think this is the next step, this technology.

**Mr Katz:** I hate to use the expression "Star Wars," because when I was a kid growing up in those days, 22 years ago, it sounded to me like—it was an absurd statement. But it's reality. The United States government spent a lot of money analyzing all those different potential processes and today they can be applied and are being applied to commercial uses.

**Mr O'Toole:** Just one, if I may?

**The Chair:** Certainly.

**Mr O'Toole:** The whole idea of, for instance, if you change the theory from landfilling and dealing with waste in other ways, that's sort of contradictory to the way we do business today. It's reuse, recycle and the three Rs scenario. This thing here has a dedicated waste stream and that sort of reverses the current methodology. You could take garbage and burn it, from what you're telling me.

**Mr Katz:** Correct, but you're still going to have the metals. You're going to have the metals, but they're going to be in their atomic state, so you're still going to be able to sell it. You're not totally throwing it out the door. You're still going to have the steels, you're still going to have some of the raw material, but the majority of what you're going to produce is going to be what we call synthesis gas. Synthesis gas is primarily similar to natural gas.

**Mr O'Toole:** Thank you.

**The Chair:** We'll move on to the official opposition. Oh, did you have a question? I'm sorry. There's still time left if you want to.

**Mr Hastings:** My question to you, sir, would be, I guess, what amount of energy do you require, megawatt-wise, to get to 18,000 degrees temperature to destroy these compounds and all the other stuff that you're eliminating—medical waste, that sort of thing?

**Mr Katz:** If you're going to produce, let's say, a 1,000-megawatt plant, if that's your intention, for that

amount of tonnage, you will probably lose about 10% to 12%; 10% to 12% of your full megawatt will go back to operate your plant. But you still have 88% to go out to sell to the grid or to whoever may need it.

**Mr Hastings:** It was a thought I hadn't given a lot of consideration to, by a professor of renewables at the University of Victoria in British Columbia. He said that one of the things this committee ought to be looking at in terms of energy policy development is how much energy you are utilizing in the development of whatever it is for what you're producing—the end product. The thing he used, and I found it rather startling because I'm a firm believer in them if you can get them right, was photovoltaic panels. He used that as an example. So this to me would be maximizing your energy inputs to get your outputs tenfold, fifteenfold. I'm not saying it's inappropriate, but is it an effective use of capital, I guess?

**The Chair:** OK, with that statement, I think we have to move on to the official opposition.

**Mr Bradley:** In its broadest terms, would it be fair to define your area of endeavour as clean coal technology?

**Mr Katz:** In addition to everything else, yes.

**Mr Bradley:** Would you say its primary use, at least in the production of electrical power, would be in coal-fired plants?

**Mr Katz:** A coal-fired plant would be one. Municipal waste would be another. I'd be interested in typical municipal waste. Then we go into industrial waste, but coal would be a very good part of it, sure.

**Mr Bradley:** If you were to apply it to municipal waste, for instance, would it not have the effect of being a competition, in terms of that waste being a competition, for what Mr O'Toole referred to as reduce, reuse and recycle? In other words, the people who want to burn garbage, it seems to me, want some of those same materials that would ordinarily be reduced in the first place or reused somehow or recycled. So aren't you competing for the same stream?

**Mr Katz:** Not necessarily, because one of the projects that we have is where we combine coal with municipal waste to increase the BTU content. So if you've got a recycling program, let's say, in the city of Toronto that already takes care of glass and aluminum and paper and so forth, we're talking about the raw material that you're going to dump in the site. If you were to recycle, there's no problem with that. If the BTU content of the garbage that goes into the disposal sites—that's all we're discussing here. We're not discussing any renewables. If you already have a program of renewables, you can continue that.

**Mr Bradley:** The other questions would be pretty technical, I suppose. I won't get into the technical aspects of it. I guess I'll leave it at that.

**The Chair:** Thank you for coming forward with your presentation.

It's my understanding the next delegation is going to be a request to go in camera. Prior to going to that, I wonder if we could have a small discussion on tomorrow's schedule. Just before that, I know there was concern a while ago, when I went to the Liberals, on a

single question. It was in the morning. With Enbridge the Liberals had the only question, with Burkhard Wegner the Conservatives had the only question, and so then I rotated back. Is that—

**Mr Gilchrist:** Obviously I believe you, Chair.

**The Chair:** OK. Thank you very much.

**Mr Gilchrist:** An honourable member, always.

**The Chair:** I just wanted to make sure you understood what I was doing as Chair.

**Mr Bradley:** I was surprised, frankly, you were being challenged on that.

**The Chair:** I'm challenged regularly.

**Mr O'Toole:** Mr Chair, now that we're commenting administratively, I'd just like to draw to the members' attention the IPPSO producers earlier today, Jake Brooks and that group. The January edition of their magazine, IPPSO Facto, is an absolute must-read for the committee. It covers all the issues we've been talking about, and I just thought we could have spent more time with them. They're absolutely paramount reading.

**The Chair:** I do want to have a second look at that. Thank you very much, Mr O'Toole.

Tomorrow we have laid out from 10 o'clock until 12:20, and in the afternoon, what was originally scheduled is to discuss the possibility of touring other facilities in Ontario, particularly in the Toronto area, what you want to do with the Navigant report and members' briefings. It's my understanding there's a possibility some members may want to get away for a function tomorrow afternoon.

1620

**Mr Gilchrist:** Not only that. If I could speak to it, Chair, three of us on this side have a conflict that, because we're running late in the morning, poses a great problem for us. I wonder, to provide a more fulsome debate, if we could arrange next week to spend a full day on the three topics that you've raised, or at least allow that much time.

**The Chair:** There's an issue that Mr O'Toole and myself have with the finance committee. It's meeting for the next nine days straight, which adds to our difficulty.

**Mr Gilchrist:** That would suggest that any discussion of possible site visits would also be moot.

**The Chair:** That would have to be moved into March.

**Mr Gilchrist:** Should we simply schedule a day for the meeting of the committee and allow you to select the first day after your other conflicts are resolved?

**The Chair:** Would the committee consider tomorrow at 12:30 for addressing the Navigant report for its possible release?

**Mr Gilchrist:** That's the time we have a problem, though. Three of us already have a conflict starting at noon, actually, so we're already somewhat compromised in terms of our scheduling. We had incorrectly anticipated the morning session would end at noon. Another august body is meeting in this building at that time.

**The Chair:** I believe Mr O'Toole has a delegation until 10 o'clock tomorrow morning.

**Mr O'Toole:** Yes, I think I have one with you, don't I?

**The Chair:** Somebody has made arrangements with you and I'm introducing them.

**Mr Hastings:** Mr Chairman, I've been very patient, and I think your Vice-Chair has as well. We have some members' reports. I've already submitted mine. I would like to know when they're going to get discussed then—at the end of March, or what? It's already been put off twice. This will be the third time. Are we going to have a fifth time?

**The Chair:** This is why I'm bringing it up. I'm at the pleasure of the committee.

**Mr Hastings:** Can we make the members' reports tomorrow morning? That's not possible?

**Mr Gilchrist:** We have people scheduled all morning.

**Mr Hastings:** Then it looks like it's going to be late March before this thing is going to be dealt with.

**Mr Gilchrist:** Might I suggest that anyone who is interested in those reports has the opportunity to read them and digest them.

I'm happy to meet Friday if the committee is so inclined. But we already have, as I say, a problem. If we're starting our other event late at 12:30, it poses a problem of coming back. Plus you've raised the issue—

**Mr Bradley:** Are we invited to the other event? Is anybody else invited?

**Mr Gilchrist:** Actually, there are a number of industry folks coming in and making presentations to another committee. So it isn't something that we have the discretion to simply change out—

**Mr Bradley:** It's not Charlton Heston speaking at a lunch or anything?

**Mr Gilchrist:** No, it would be the Red Tape Commission.

**The Chair:** May I make the suggestion that the subcommittee meet as soon as possible to make plans for future meetings?

**Mr Gilchrist:** Absolutely.

**Mr O'Toole:** I would only put one last thing on the table, if I may. During the March break, the teaching school break, I'll be away, only because my wife's a teacher and I have to pay some respect. So I wouldn't schedule anything that week if we can avoid it.

**Mr Gilchrist:** As a member of the subcommittee, I certainly give you an undertaking that we will keep in mind the March break.

**The Chair:** In view of the problem we're going to have with attendance tomorrow afternoon, the three items on for tomorrow afternoon—tour of facilities in Ontario, release of the Navigant report and members' briefings—we'll direct the subcommittee to arrange for a convenient date. In order?

**Mr Hastings:** Not subject to further change then?

**The Chair:** I hope you're right, Mr Hastings.

**Mr Hastings:** I won't hold my breath.

**The Chair:** It's my understanding that there may be a request to move in camera. Hearing none, then—

**Mr Gilchrist:** If you expect it from a member, then I would make that motion, that the committee move in camera for the purposes of hearing the next presentation.



**The Chair:** Then I think we should know why we have to move in camera, for the benefit of the members.

**Mr Gilchrist:** Quite simply, because we're being given, to some extent, advance notice on technology that has not been made public yet, in the interest of the committee having as comprehensive an idea of the available technologies out in the marketplace. The alternative would be to defer this presentation potentially to a point beyond which we wouldn't be able to assimilate it in our updating of the draft report.

**The Chair:** Thank you.

*Interjection.*

**The Chair:** Thank you very much. Motion carried.

*The committee continued in closed session from 1625 to 1708.*

**The Chair:** Thank you very much. We've now moved out of camera. Is there any report? There's no report. The select committee on alternative fuels now stands adjourned.

*The committee adjourned at 1708.*





## **SELECT COMMITTEE ON ALTERNATIVE FUEL SOURCES**

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### **Vice-Chair / Vice-Présidente**

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Mrs Marie Bountrogianni (Hamilton Mountain L)

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Mr Ernie Parsons (Prince Edward-Hastings L)

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of Ontario**

Second Session, 37<sup>th</sup> Parliament

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Mercredi 20 février 2002

**Select committee on  
alternative fuel sources**

**Comité spécial des sources  
de carburants de remplacement**

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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Wednesday 20 February 2002

Mercredi 20 février 2002

*The committee met at 1005 in room 151.*

## CEMENT ASSOCIATION OF CANADA

**The Chair (Mr Doug Galt):** I call to order the select committee on alternative fuel sources. The first delegation to present this morning is the Cement Association of Canada, Wayne Dawson, vice-president, Ontario region. Mr Dawson, I'll have you introduce the other members of your delegation. Please state your names and positions. There's a total of 20 minutes. What you don't use in presentation will be divided between the caucuses.

**Mr Wayne Dawson:** I'd like to thank the committee for giving us the opportunity to give this presentation. My name is Wayne Dawson. I'm vice-president of the Cement Association of Canada for the Ontario region.

**Mr Ed Orsini:** My name is Ed Orsini, vice-president of marketing for St Lawrence Cement, Ontario.

**Mr John Evans:** My name is John Evans. I'm manager for raw materials and fuels for Lafarge.

**Mr Dawson:** Finding ways to minimize use of our fossil fuel resources is an extremely important topic, and the cement industry commends this effort. The cement industry association has 100% membership of the cement companies and is the sole voice of Canada's cement industry. We employ about 22,000 people and have \$4 billion of revenue, and Ontario represents about 40% of that total. We export half of our product from Ontario to the US. Of course cement is a basic building block, so the value of the commodity is actually far more than just the value of the production.

Ontario, despite its best efforts to reduce, reuse and recycle, is still a very large waste producer and needs to look at other opportunities to deal with the problem. As you will hear in the presentation, many other jurisdictions around the world are using the cement production process because of its very unique attributes to assist in solving one part of the problem: how to manage the vast number of remaining scrap tires.

In recycling tires through a cement kiln, the following is achieved: tires have about 14,000 BTUs of energy per pound, which is a very high energy value, and that energy is recovered from the rubber, eliminating the need for us to use fossil fuels. And 100% of the remaining waste is also recovered. The steel is recovered as an iron supplement necessary to make cement, while the ash is

recovered and actually becomes part of the cement chemistry.

Cement is formed by heating crushed limestone, clay, iron ore and sand to a white-hot mixture at 1480°C to form clinker, which is then ground into cement. We go to temperatures about a third as high as on the sun, so it's a very, very hot temperature. It's much hotter than any other process that exists. That high temperature also means we use a lot of energy to get there. That's why scrap tires are a good source of energy that can be used and can eliminate a great amount of use of dwindling fossil fuel resources.

I'd like to talk about one big misconception: that if you use tires in a cement kiln, you increase the impact of producing cement on the environment, and that's not true. There is an impact on the environment in producing cement, but using tires does not change that impact. Tires have a high heat value with a low moisture and sulphur content. In fact, research has shown that in some plants NO<sub>x</sub> emission can be reduced 10% to 50% by burning tires instead of other fossil fuels. Sulphur emissions are also low, because sulphur is low in tires, and at the burning point there's a lot of limestone, which actually tends to scrub out any remaining sulphur.

Recycling energy from scrap tires is not new. It's been used in Europe and in many North American jurisdictions such as Quebec and several US states. I believe Ontario is now the only province that doesn't have a formalized management program for tires; Newfoundland is just starting a program. Almost all the programs use cement kilns as part of their overall strategy when there's a cement kiln in the area.

We do understand, though, that there have been events in Ontario in the past, such as large tire fires and municipal incinerating controversies, that have maybe sensitized the public, and the cement process may be susceptible to being wrongly painted with the same brush. There are really too few examples right now where we can have win-win situations, where industry can win, the environment can win and the public and public leaders can win. It would be a shame if this opportunity were lost due to this type of misconception.

## 1010

In the handout, we highlighted the Quebec model, which we feel is working very well. St Lawrence and Lafarge handle about four million tires a year in Quebec. The tire program is funded by a \$3-per-tire levy on the

purchase of new tires, and Recyc-Québec uses the money to collect the tires and distribute them to wherever: to the recycling plant or to our plant. Also, it gives a fee to the designated facilities.

Just for your information, this is not a freebie for us; it's a significant capital cost to change a plant to accept alternative fuels. The monies that Quebec provides help make the economies of the conversion work. We need a management program to ensure a long-term supply of tires, because if you convert and pay the capital to convert the plant to do this, you need to ensure you have a supply to make the economies work out over the long term.

Some positives from the Quebec model: retailer registration in the tire program has gone from 2,000 to 8,500 retailers who are now involved. Twenty million tires have been treated, transformed or recovered through valorization since 1993. Fifteen new recycling companies and 300 new jobs have been created. Seventy per cent of the tires are used in the recycle market. So recycling is the first priority, and what they can't use through recycling, that's when the cement kilns come into use. Quebec signed an agreement with two of our spare plants to clean up a stockpile of old tires. Quebec has about 30 million tires.

The situation in Ontario is that it's legal under part V of the Environmental Protection Act to use cement kilns to recover energy from tires. In fact, one of our members, Essroc, at the Picton plant, received this approval in 1997. It received the two certificates. It did a community outreach program as part of that to get community support, and it also received a certificate to store 50,000 tires on-site and has the endorsement of the local fire department. But it's not burning tires, and the reason for that is that approvals are time-consuming, but public perceptions on burning wastes in general are also an issue with our industry. We want to get along with our local communities. We look to this committee, if this was of interest to the committee, to support the benefits of alternative fuels and to recommend some public education.

The capital cost of upgrading the plants to accept this form of fuel, as I say, can vary significantly from plant to plant, and it is significant. A formalized scrap tire management program is absolutely essential to guarantee a long-term supply of tires. That's a major issue with the Essroc plant in Picton.

Ontario generates 11 million scrap tires a year, which is a huge problem. Until recently, large numbers were exported to jurisdictions such as Michigan and New York. Of course, the borders are closing a bit for some of this. Further use of fossil fuels to transport these tires such long distances with the resulting emissions that take place when you have a very acceptable and readily usable technology locally to deal with the tire issues just seems illogical to the cement industry.

There's a bill that is, I think, at third reading now—Bill 90, the Waste Diversion Act—and there has been a scrap tire stakeholders committee that's had input to that bill. We support the stewardship model of this bill and would like to play a role in the program.

There's one section of the bill that is a bit of a concern to us, and it's section 24(2):

"A waste diversion program developed under this act for a designated waste shall not promote any of the following:

"1. The burning of the designated waste."

As the stakeholder committee is promoting that the first priority be that we recycle, we assume that they're not promoting. But the wording is of concern to us in that it's not misinterpreted by others who wouldn't want this to happen. So the wording is of some concern.

We were willing, when the Waste Diversion Organization formed Bill 90, to work with them and to develop a tire management program. We would encourage the government, particularly the Minister of the Environment, to support tire-derived fuel use, to the extent that there is no demand for recycling, as a critical component of any future management program. A comprehensive program will then provide a reliable tire supply for fuel purposes.

To summarize, scrap tires provide a safe and effective alternative energy source to fossil fuels in cement plants and they do not increase emissions in the regular production of cement. Benefits regarding emissions reductions and less reliance on landfills have been proven in other jurisdictions. Deriving energy from scrap tires instead of fossil fuels actually can reduce NO<sub>x</sub> emissions without increasing other greenhouse gas emissions.

The association encourages this committee to reinforce the benefits and use of tire recovery in its future report. We also encourage the committee to make recommendations regarding public education initiatives aimed at understanding the benefits of alternative fuel use and to deal with the misconceptions.

Tire incineration is legal in Ontario under the Environmental Protection Act. The scrap tire program in Quebec demonstrates that we can work with processors and the cement industry to make it work, but part of that is requiring a comprehensive management program for tires.

In current legislation and regulation there is some concern with some of the wording in Bill 90, that it might be misinterpreted down the road, and the regulation process to get approvals is a disincentive.

Thank you very much for the opportunity. We've handed out a more detailed summary report. We'd be happy to answer any questions.

**The Chair:** Thank you very much for a comprehensive presentation and handout. We have about five minutes per caucus for questions and/or possible comment, beginning with the official opposition.

**Mr Ernie Parsons (Prince Edward-Hastings):** The issue of tires is I think of grave concern to the public. I have been told—and I'm not in a chemical-related field—that if the tires are not burned but simply lie in a field or are buried, they emit greenhouse gases and they emit pollutants into the ground. So although there may be a perception, which is incorrect, that burning them would do it, in reality not burning them but leaving them in the



field causes emissions or, even worse, society is at a risk of these massive amounts of tires catching fire in an uncontrolled manner.

You burn them at about 3,000 degrees Fahrenheit?

**Mr Dawson:** Yes. The flame is about 3,000 degrees Fahrenheit. The material has to get up to about—I'll maybe let John answer.

**Mr Evans:** As we mentioned, we typically burn at temperatures of one third the temperature of the sun. Our flame temperatures are roughly 3,500 degrees Fahrenheit. For the chemical reaction to take place—that means for all the raw materials to transfer into that cement clinker—that meal has to reach temperatures upwards of 2,650 degrees Fahrenheit. So that's the minimum temperature we need to make cement.

**Mr Dawson:** That's about 1,000 degrees hotter than, say, an incinerator or other types of burning processes, and that's why the results are very different and the resulting emissions are different.

**Mr Parsons:** Obviously you can't undertake it unless you have a guaranteed regular supply. You can't burn tires one day and not the next day.

**Mr Evans:** We require capital, and tires are a different kind of fuel than we typically handle. We're set up to process and use coal or coke as our primary fuel source. The coal comes in and it comes in fairly small and then we crush it even further so we get good volatilization. You can't just crush the tires to that size, not economically at least. We have to put in a different kind of fuel handling system, so we require capital to fit our kilns to be able to manage the tires. So a good long-term source of tires that we can spread the capital over to pay it off is important for us.

**Mr Parsons:** You would need a province-wide program to collect and transport tires?

**Mr Evans:** Yes, sir.

1020

**Mr Parsons:** You alluded to it, but what specifically needs to happen to remove the barriers to tire burning now? What can the province do in terms of public education? What are the barriers right now to you firing it up tomorrow?

**Mr Dawson:** I think if Bill 90 goes through and that tire program gets up and running, we will work with that and that's the thing, except we have some concern with the wording. We've talked to the Ministry of the Environment and certainly the intent is not to prevent this, but we have some concern that the wording could be misinterpreted even though that's not the intent. Sometimes someone else comes new on the scene, or someone who disagrees with it and may be able to use that wording, so that's a main concern. The other issue is the degree of difficulty in getting approvals or whatever. Part of that is the public. We don't want to do this and have a local public—

**Mr Parsons:** Right.

**Mr Dawson:** Mr Parsons, you have a plant in your riding. Working and getting that approval in that

particular plant that is in your riding, we need to have good relations with the surrounding public.

**Mr Parsons:** There's a mental image of black smoke pouring out of the kiln.

**Mr Dawson:** Yes. It may be incorrect, but it's important that we have a good relationship with the community.

**Mr Parsons:** You've talked about tires. What about sludge? Can you burn sludge?

**Mr Evans:** What kind of sludge?

**Mr Parsons:** Out of a sewage treatment plant. That is also an increasing problem across the province.

**Mr Evans:** I'd have to look at the chemistry and I'd have to look at the BTU value of the sludge, but that might be a possibility.

Some of the other by-products—cement plants are a great place to recycle energetic by-products or inorganic by-products that have some mineral value. Just quickly, we use calcium, we use silica—sand—we use iron and aluminium to make our cement product. So we can recycle a myriad of products. The sludge that you're referring to probably is a calcium-based lime sludge.

**Mr Parsons:** Probably, yes.

**Mr Evans:** If it's a calcium-based lime sludge, that's something that we can certainly take a look at. We're looking at something generated out of the Sarnia area right now that's a lime sludge, and we're looking to see how we can incorporate that into our process. It's a waste water treatment derivative. All the things that we can recycle in a cement kiln setting benefit us both.

**Mr John O'Toole (Durham):** Good to see you again, Wayne, and thank you for the work you continue to do in trying to be good industrial leaders in terms of looking at options. I think Mr Parsons and I, and Mr Hastings as well, have attended the educational receptions that you've hosted here around this industry, of which there is one in my riding and in Mr Parsons's riding.

I think Mr Parsons has alluded to it. How do we somehow get past the bump in the road in terms of the word "incineration"? My problem is that conceptually it's already happening. It happens when you're burning fossil fuels. It seems to be a culture of acceptance. Not that it's good or bad; I guess we need to weigh the value of quality of life and concrete and how that all fits. But in fact you are only substituting a fuel source, and that's really the quantum leap that has to be made here from what we're traditionally doing and what you might be proposing to do.

It's my understanding that we no longer have the \$5 tire tax in Ontario.

**Mr Dawson:** That's correct.

**Mr O'Toole:** I see Quebec has a \$3 tax. Does that go to the industry to help you retool or to deal with the transportation logistics? Is there a subsidy from the Quebec government in the current model?

**Mr Dawson:** Yes. It's Recycle Quebec, and they use that money to pick up the tires from the retailers that have signed on, because the retailers can get rid of the tires. I was involved with another company before I got

this job that had a lot of land holdings and we had a major problem with illegal dumping of tires. This way, the retailers can get their tires picked up. They pay for picking up the tires, transporting them to the recycling or cement plant. They also pay a little bit to the cement plants for handling and dealing with the tires, which helps cover the capital. So yes, John, a small portion of that does.

**Mr O'Toole:** I guess really having a stable regulatory climate in terms of making the capital investment necessary to change the processes, then having a potential change in government—now, that would be 10 or 15 years from now.

*Interjection.*

**Mr O'Toole:** Unfortunately, Ms Churley—I don't know whether she's boycotting the meetings; there was some stuff in the media about travel and the work of this committee. They have a very adamant position on incineration, as did Ms Grier, the former Minister of the Environment, an all-or-nothing kind of policy.

Do you have any suggestions how the industry itself could do more, not just the government? Your appearing here is one step in trying to educate on the choices we have to make. Is there anything more that you think the industry could do to raise this option as a viable economic sustainability argument?

**Mr Dawson:** Just to comment on a couple of things: one is that we understand that in the production of cement we need to have the minimum amount of emissions we possibly can. In Ontario, for example, the association has an environment committee from all the plants that meets every month, basically, in our office to coordinate what actions are going to be taken. As you know, you have to do that because one plant doesn't want to do something the other plant doesn't do, because it's a competitive environment. We're doing that to help that along.

We're also trying to market our product so that the end use of the product, the concrete, is used in areas such as R-2000 homes versus the low—so the product itself, cement, is an enabling type of material, and we're trying to give that message to the public as well. There is some issue with the production, some emissions with the production of it, but they can be used in the end product and actually be very much of assistance to the whole greenhouse gas issue that we're facing. So we see ourselves as being part of the solution.

I don't know what else we can do, but we're certainly trying to get the message in the papers about how we're using our product etc. We think this committee could be helpful as well in a recommendation that recognizes that we are not an incinerator, we are a recycler of a product, and that it's a replacement fuel, not a new fuel. It doesn't add to the production of cement; it actually can help us lower emissions, especially  $\text{NO}_x$  emissions.

**Mr O'Toole:** Do you have scientific-based reports from Quebec or other jurisdictions that use tires to relate to the  $\text{NO}_x$  and other types of emission reductions? Those would be very important numbers to fundamentally

underpin why. Those who are opposed to any form of incineration would want us to demonstrate why in policy we are looking at greenhouse gases and other emissions, but we need to have scientific data. Do you have that kind of stuff from other jurisdictions?

**Mr Dawson:** Yes, we could provide you with that backup data.

**Mr Evans:** It will show that tires burn cleaner than many types of fossil fuels.

Just going back to your first question, I think we as an industry can do a lot to help propel the recycling of tires in today's society. We work with tire recyclers to let them know what options we have available. We work with the manufacturers—Goodyear, Firestone and others—to come to agreements to help funnel tires our way so that they're properly managed.

At the recycler level—the tire changers where those tires are picked up—when we have these programs in place, they also let the people who are coming in for new tires know what's going on with the old tires, that they are indeed being recycled and not incinerated.

Incineration has this sort of finality to it that, "Jeez, this is the last option." In the hierarchy of waste management, incineration and landfill are the bottom rungs. What we're doing here is energy recycling. We're not going to incinerate coal; we're going to burn coal for its energy value. We're not going to incinerate tires; we're going to burn tires for their energy value plus the mineral value they bring to our process.

**The Chair:** Thank you very much. We're over our time. We appreciate the presentation.

#### CANADIAN AUTO WORKERS WINDSOR REGIONAL ENVIRONMENT COUNCIL

**The Chair:** We are now moving on to a video conference with Windsor. Is that all set to go? Are you hearing us?

**Mr Mark Bartlett:** Yes. Hello.

**Mr Tom Gelinas:** Can you hear us?

**The Chair:** Good morning. Yes, we can.

Our next presentation is by Ken Bondy. I see there are two people there. Maybe in a moment you can introduce both. They're with the Canadian Auto Workers Windsor Regional Environment Council.

For the sake of Hansard, as you begin, state your name, position and the other member of your delegation. You have a total of 20 minutes. Following your presentation, whatever time is left over will be divided between the two caucuses.

1030

**Mr Bartlett:** Good morning. I'd like to say hello from Windsor. I'm Mark Bartlett, from the Windsor Regional Environment Council. I'm the recording secretary and I'm here in Ken Bondy's place. The other member of our delegation is Tom Gelinas, who is also a member of the Windsor Regional Environment Council.



I think it's significant that we're here from Windsor. Everyone there has seen the recent reports of the increased health risks of living in Windsor. I think that the work the subcommittee is doing will have a direct impact on the health of people in Canada.

**Mr Gelinás:** With that, we're going to go into a slide show that we've prepared, Alternative Fuels and Just Transition: A Bridge to the Future.

**Mr Bartlett:** Who we are: the Canadian Auto Workers Windsor Regional Environment Council represents more than 40,000 active workers from 14 locals in Windsor and Essex county. Our motto is "Labour working towards sustainability." Through education, political action and community involvement, we strive to protect, enhance and restore the quality of our environment while enhancing the job security of our members. This is from the CAW statement of principles: "Workers must have the right to choose both economic security and a healthy environment for ourselves ... and future generations."

Just a brief outline: we're going to talk briefly about alternative fuel technologies, sustainable development, green jobs and Just Transition and end with some conclusions.

I think we may all be familiar with, and you've probably heard a lot about, these different technologies: natural gas vehicles; electric vehicles; full-size; something you may not have heard of is a neighbourhood electric vehicle, which is a limited-use vehicle that's used perhaps in retirement communities or gated communities—they are illegal on certain roads, but they comprise a very small part of the automotive fleet; alcohol vehicles; and flex-fuel vehicles that can use up to 80% ethanol.

**Mr Gelinás:** The infrastructure: a barrier to alternative fuel vehicles. Some of the problems we face are that we need to have vehicles that utilize our current infrastructure or we need to build a new infrastructure. In current corporate average fuel economy, weak rules allow manufacturers to produce low-fuel-efficiency vehicles, such as SUVs, and offset this by producing a limited number of ultra-low-emission vehicles.

**Mr Bartlett:** Some of the solutions we see to these barriers, of course, are alternative fuel vehicles, incentives for industries and consumers, regulation to require increased fuel economy to drive innovation toward these, long-term vision to provide a market for alternative fuels—of course, that's new vehicles—infrastructure investment and R&D partnerships with government and industry.

**Mr Gelinás:** Medium-term hybrid electric vehicles: corporations are prioritizing the hybrid electric vehicle technology on vehicles that customers will accept. There are fuel savings that do not pay back hardware without tax incentives, that is, incentives for advanced technology that would promote initial customer acceptance.

**Mr Bartlett:** This just gives you a graphic illustration of where we are. The internal combustion engine—there are a number of new developments you probably can't read there, but we'll talk about them. Of course, eventu-

ally—if you look at the timeline along the bottom—by 2020 fuel cells should be pretty pervasive in the industry. The current engines will make a lot of progress to further reduce emissions and improve fuel economy before the fuel cell technology reaches a significant market.

**Mr Gelinás:** A long-term solution is fuel cell vehicles. While the fuel cell vehicle market entry is anticipated in 2004, volume production is roughly 10 years away. Due to cost complexity and fuel infrastructure, this could happen quicker, with assistance from government. Internal combustion engines are at least 10 years away. A 10-year stopgap solution may coexist with the fuel cell vehicles, long-term.

**Mr Bartlett:** What's important in this graph is the bottom yellow section that talks about fuels. As you can see, this is from the Canadian Vehicle Manufacturers' Association. They're looking to see that cleaner gas and diesel will be a short-term, near-term solution. Alcohol fuels will increase around 2010, with up to 80% ethanol, and hydrogen fuel cells will be prevalent in the power trains and hydrogen will be the prevalent fuel by 2020.

Of course, they said we wouldn't be building any fuel cell vehicles until probably 2020. The technology has advanced dramatically in the last five years and it's likely this timeline will be shortened.

**Mr Gelinás:** In summary, hydrogen-powered fuel cells demonstrate ultimate long-term, high-fuel economy and low emissions power plant technology. Conventionally fuelled hybrid electric power trains could provide a solid interim step to eventual all-hydrogen systems. Alcohol fuels may provide the best mid-term transition to hydrogen fuel. Gasoline and diesel fuels will be available in the near term, but environmental and societal pressures will cause a shift to alternative fuels. Conventional internal combustion engine technologies must provide the next short-term steps to improve fuel economy and reduce emissions.

**Mr Bartlett:** How do we get there from here? I'm sure many of you are familiar with sustainable development, but I think it's important that we frame it in our perspective. Sustainable development is commonly defined as development which meets the needs of the present without compromising the ability of future generations to meet their own needs. While sustainability originally referred to the environment, it clearly has to be a broader concept if it is to be effective as an idea to drive industrial change. Sustainability should be comprised of three pillars: economic growth and prosperity, ecological balance through environmental protection and social progress toward equity.

**Mr Gelinás:** Sustainable economy versus unsustainable economy: a sustainable economy is one that provides sustainable, that is, continuous employment. For workers, a sustainable economy means sustainable production, quality in jobs, standard of living and durable products. An unsustainable economy is one where we will ultimately have no jobs and no future for our children. Without transition to sustainability, gainful employment will collapse. Workers will be party to, that is,

most effected by, moves to a sustainable economy. Polluting jobs will disappear and new green jobs will appear. However, the new jobs are often in a different place, requiring different skills, with no provision for economic conversion. We must support the transition to quality jobs.

**Mr Bartlett:** Green jobs and a sustainable economy: green job creation is the essence of labour's environmental policy. We have to have a strategy to secure high-paying, quality jobs for our members. A sustainable economy makes lower demands on natural resources, is energy-efficient and uses energy from renewable sources which does not generate damaging pollution and waste. A sustainable economy is labour-intensive, producing long-lasting, durable jobs.

**Mr Gelinas:** Future green automotive jobs: jobs in the automotive and transportation industries; building alternative fuel power plants, such as electric and fuel cell engines; building alternative fuel vehicles; and extended producer responsibility.

**Mr Bartlett:** I'll just expand briefly on extended producer responsibility. You may be familiar with the concept. The idea is that the producer of any particular item, particularly in this case vehicles, is responsible for the vehicle for its entire life. Rather than a cradle-to-grave situation, it's a cradle-to-cradle situation where they reuse the constituents of the vehicle. This is currently legislated in the European Union. By 2015, all the automotive companies in Europe will have to take their cars back, disassemble them and recycle the constituent parts.

The job-creating potential of a sustainable economy is large. A Canadian estimate of the employment impact of effective measures to combat climate change indicates that two million new jobs would be created over 15 years. A good example is that to generate 1,000 gigawatt hours of electricity per year, it takes 100 workers in a nuclear plant, 116 in a coal-fired plant, 248 in a solar-thermal facility and 542 on a wind farm.

**Mr Gelinas:** How do we get to a green economy? A green industrial strategy; a green screening of industrial projects; pollution prevention; energy efficiency and waste reduction; environmental regulation which creates jobs; environmental protection and public service. Regulation also forces innovation, which gives industrial plants a longer life.

**Mr Bartlett:** Further, ecological tax reform with high taxes; the abolition of subsidies on unsustainable practices; positive financial incentives to encourage green industries; creation of environmental funds to finance job-creating measures over climate change and global warming; and alliances with youth, environmental movements, labour, industry and government to make green job creation a part of the social agenda for the next generation. Just Transition is an integral part of the move toward such jobs.

**Mr Gelinas:** What is Just Transition? It's the labour movement's vision of a healthy Canadian environment. Just Transition is about planning for change. Environ-

mental change is occurring. People work in jobs that will become obsolete. Unsustainable production, environmental degradation and resource exhaustion will cause entire polluting and unsustainable industries to disappear.

Sustainability will require change in the entire society: governments, communities, employers and workers. This is a responsibility to put in place programs and policies to treat workers with fairness and economic justice, that is, Just Transition is essential to the process of environmental change.

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**Mr Bartlett:** The objectives of the Just Transition program: to look after needs of communities and workers affected by the move to a sustainable economy, maintain their quality of life and allocate the costs in a fair and equitable manner. Workers have a right to expect that they will not bear the entire burden of the adjustment. Just Transition reflects the political obligation to ensure that society as a whole pays the price for changes from which everyone benefits. Just Transition should be an earned right like a pension or unemployment insurance.

**Mr Gelinas:** To continue, the main aim of Just Transition is to provide alternative work for displaced workers in sustainable industries. Society must share the burdens of the transition with the workers and the communities which are most directly affected by the changes. All in society benefit from fair and equitable Just Transition programs in terms of reduced health care and social costs and even the survival of communities. Corporations have a responsibility to their workforce and the communities in which they operate. They must be held accountable to assist in the transition for displaced workers.

**Mr Bartlett:** Why act now? We're facing the most dramatic change to our transportation and energy industries since the invention of the internal combustion engine. Just Transition should be active rather than reactive, anticipating and dealing with crises before they happen. Through active transition policies, with enough lead time to be properly put in place, workers will be able to transfer from unsustainable to sustainable jobs without dislocation or chaos. There must be enough time—in some cases a decade or more—allotted to develop and implement a Just Transition policy. Building autos with low-emission engines, phasing out of chemicals and changing resource extraction practices have already cost jobs.

**Mr Gelinas:** Who needs to be involved? Just Transition programs must apply to public and service sector work, as well as resource and manufacturing industries affected by changes in environmental standards; that is, unions must be involved in designing and implementing transition programs. Why? Unions can help design strategies to meet the needs of diverse sectors and regions to continue to have a role after the transitions have been made and the programs delivered. Communities must be included in Just Transition programs, especially if they involve economic diversification projects. Often a downturn in a one-industry town affects not only workers and their families but the entire community, including public sector workers.



**Mr Bartlett:** Elements of the transition program to meet the needs of displaced workers are: support for communities for increased employment in new, diverse industries; support for re-employment; protection of income from one to four years; re-education and retraining; for older workers, an option of bridging to their pension at a full retirement rate; research and development; public and private investment; and, where needed in communities dependent on one industry, economic diversification projects, including value-added local production, worker-based enterprises such as co-ops, and new community-based enterprises.

**Mr Gelinis:** Just Transition education programs: it is essential that the education and retraining of displaced workers be in the public domain. Programs should be delivered in community colleges in the public education system through adult education programs, by union members and by not-for-profit, community-based organizations wherever possible. The public education system should be a partner with labour and industry to tailor education and training that best fit their workers' needs.

We should develop a national program to identify a wide range of occupational qualifications and provide vocational guidance and assistance to workers seeking to move from one occupation to another.

**Funding responsibilities:** funding for Just Transition programs should come from a variety of sources, depending on the situation. Governments should create funds for Just Transition programs and impose a levy on unsustainable industrial activities dedicated to a transition fund, not general revenue. Communities, through their municipal governments, could establish local Just Transition funds to support change in their community. Workers themselves could contribute to the funds.

And, most importantly ...

**Mr Bartlett:** Corporate responsibility: business has a responsibility toward the communities in which it invests. Why? They're allowed to use communal resources and infrastructure to make profits. They do pay wages and taxes, but they should have other responsibilities: to move to sustainable production methods to protect the environment; to co-operate with workers, communities and government in the movement to sustainable production; to ensure that Just Transition programs are properly implemented. Businesses should not be allowed to move elsewhere without aiding communities in their transition to new, sustainable economic activities.

**Mr Gelinis:** Consider what happens without Just Transition. In the American Pacific northwest, 28,000 workers lost their jobs as a result of measures to protect the spotted owl, where there was no program to pick up the pieces. As a result of the collapse of the northern cod industry, close to 20,000 workers lost their jobs. In that case, the compensation scheme was the TAGS program, but there was no plan for a long-term transition program to protect those workers affected by measures to reduce and sustain the cod fishery.

Employment in the auto industry: employment figures in the thousands. I'm just going to have you take note of

the last one, manufacturing, which defines the majority of manufacturing jobs as automotive—that is, Canada-wide it's 2,274,000 and in Ontario it's 1,870,600. Again, the majority of manufacturing is automotive.

**Mr Bartlett:** It's important to note that this also depends heavily on energy supplies. That will affect the infrastructure as well. The Canadian Vehicle Manufacturers' Association cites that one in seven Canadians is directly or indirectly employed in the automotive industry. Automotive is Canada's largest manufacturing sector. The Canadian auto industry accounts for over 5% of world production. Total trade surplus in finished vehicles is over \$30 billion. The United Nations estimates that 75% of the world's GNP is linked to the automobile and petroleum industries.

The essence of public policy is timing. The first consideration in creating comprehensive policy to avoid these disasters is foresight. We have to anticipate economic change and plan transition, including the retraining programs needed as an integral part of industrial change. There is clearly time, but we need to start now to structure a Just Transition program, of which the key factor is placing displaced workers in new alternative industries.

**Mr Gelinis:** There are some examples here—I'm not going to get into them all—with the salmon fisheries and some of the results.

**Mr Bartlett:** I think this is an important one that we can talk about: the tetraethyl lead situation. When tetraethyl lead was removed from fuel to benefit the community and the environment, there was basically a ban. Over 2,000 Canadian workers lost their jobs. A decade after the ban, 36% of the production workforce was still unemployed, 8% held part-time jobs, 23% had lower-paying jobs and 25% held jobs of equal or higher salaries. All the workers, of course, lost their seniority and they lost their future pensions.

This model, I guess you'd call it, is repeated in a number of industries when changes are made. With an increasing number of changes to benefit our environment and the public good, we'll see that this will happen more often.

Economic adjustment success stories ...

**Mr Gelinis:** One of the few success stories in Just Transition concerns the US Redwood National Park's expansion in the late 1970s, a rare convergence of labour, environmental and political interests. A plan was worked out to protect the livelihood of timber workers who would lose their jobs as a result of the park expansion, which was 48,000 acres. All timber workers laid off between 1977 and 1980 were guaranteed their wages, benefits and pensions, the last of these paid by the government, for at least four years. They also received training and relocation benefits, again paid for by the government. By 1981, \$41 million had been spent on these measures, which were claimed by over 2,500 workers—\$4,100 per year per worker.

**Shortfalls:** in the absence of public planning, there was some compensation and then there was transition to

alternative work. In the absence of the longer-term commitment of all concerned, many workers did not find work.

**Mr Bartlett:** Another success story I'll just briefly touch on is that I'm sure some of you are familiar with when you go to a hotel room and you can leave your towel hanging, rather than having it washed. That's done for an environmental purpose, to save water—

**The Chair:** If I could interrupt just for a second, you have about one minute left in your presentation.

**Mr Bartlett:** OK. I guess what we'll do is just go down here and talk about government action. What we would like to see is a Ministry of Just Transition created with adequate funding and regulations that would require corporate social responsibility through Just Transition. We'd like to offer corporations incentives to convert to clean technology and engage in dialogue and analysis of employment adjustment impacts in conjunction with unions, communities and the industry through a Just Transition implementation committee. We'd create a Just Transition funding agency supported by diversified funding, including levies on polluting activities.

**Mr Gelinis:** The concept is similar to the use of tobacco and alcohol taxes to fund health care. Just Transition planning; providing income guarantees to eligible workers. Again I'm not really going to get too much into that.

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**Mr Bartlett:** You can just go to the conclusions. Basically, what I'd like to say is that the move toward sustainable production methods must be a high priority for communities. The transition to sustainability will mean a restructuring of the economy. There will be a cost to all in this change, and Just Transition will ensure that the cost of environmental change will be shared fairly.

**Mr Gelinis:** Further conclusions: a failure to create a Just Transition means that the cost of moves to sustainability will devolve wholly on to the workers in targeted industries and their communities. We want to preserve and enhance the global environment for its own sake and for the sake of our children and the world they will inherit, for the sake of their own productive future. Just Transition is essential for this process, and as such represents the way forward to a sustainable future.

**The Chair:** Thank you very much for a very extensive presentation, very detailed. It's much appreciated. For the sake of Hansard, you stated your names. They would appreciate it if you would spell them. They don't have it written down, or they're concerned about accuracy.

**Mr Bartlett:** Certainly; Mark Bartlett.

**Mr Gelinis:** Tom Gelinis.

**The Chair:** Thank you very much. Now, I should explain, tomorrow we will be in Windsor touring some of the plants, but Hansard won't be with us. It was important that your testimony be recorded in Hansard, so that's why we're doing it by video conference today. You might wonder, when some of the committee members are there tomorrow, just what is going on. But with the one presentation, we thought it was best in this way.

The other thing is, compliments to staff in setting up the video conferencing so quickly. The switchover was almost instantaneous.

Thank you for your presentation; take care.

**Mr Bartlett:** Thank you very much. I wonder, sir, are you going to be visiting a DaimlerChrysler or Ford facility?

**The Chair:** The answer is yes.

**Mr Bartlett:** Either one or both of us may see you there. I'm at DaimlerChrysler.

**Mr Gelinis:** And I'm at Ford Motor Co.

**Mr Bartlett:** Tom's at Ford. We both work on environmental issues.

**The Chair:** OK, keep your eyes open. We'll be moving through.

**Mr Bartlett:** We will.

**The Chair:** Thanks very much; have a good day. Bye-bye now.

**Mr Bartlett:** You too. Bye now.

## CANADIAN NATURAL GAS VEHICLE ALLIANCE

**The Chair:** Our next delegation is John Finch, marketing manager, Canadian Natural Gas Vehicle Alliance.

**Mr John Finch:** Good morning.

**The Chair:** Good morning. As you start your presentation, state your name for Hansard for accuracy. You have a total of 20 minutes. What you don't use in presentation will be divided between the caucuses for questions. It will be necessary once you start speaking to sit down so that when you're speaking, it goes into the microphone for Hansard.

**Mr Finch:** Thank you very much to the committee for inviting me to speak today. My name is John Finch. Just to let you know who I am, I've got quite a bit of experience in the NGV industry. I'd been working with Consumers' Gas for seven years, from 1990 until 1997, and then as a consultant in natural gas with Mike McNeil at the Canadian Natural Gas Vehicle Alliance, as well as with other people who are interested in transportation fuels.

This morning, I'd like to review the benefits of natural gas, emissions data, the vehicles that are available now and recommendations.

The benefits of natural gas vehicles: I'll just go through these quickly. I think you probably have reviewed these before, but after that I'll get into more detail with the emissions benefits.

Certainly the benefits of natural gas vehicles are less smog-producing emissions; reduced greenhouse gas emissions; reduced risk of soil and water contamination, and by that I mean with gasoline you have the opportunity of underground storage tanks leaking and spills from delivery vehicles; lower operating costs for vehicles, basically the fuel costs. There's job creation that in Ontario works out to just under 2,000 person-years of job creation. There are also reduced health costs resulting from improved air quality. Perhaps one of the most im-



portant benefits of natural gas is that it's a bridge to the cleaner or cleanest fuels of hydrogen and fuel cells. Hydrogen and fuel cells are expected to be here in about 20 years and natural gas provides an opportunity for emissions reductions right now.

This line indicates the amount of emissions reductions. The way we've presented it is in grams per kilometre. That's perhaps a little bit more visually understandable than in percentages. But if you think of it, if you look at climate change pollutants: 68 grams per kilometre reduction by using natural gas as opposed to using gasoline.

I won't go through each of these with you. You've got the idea that it's grams. But to put that into perspective, if there were 1,000 taxis on the road in Ontario, that would mean 11,000 tonnes of emissions reduction per year. Eleven thousand tonnes is an awful lot of emissions reductions, if you can think of it in terms of tonnes. If there were 1,000 couriers or delivery vehicles on the road in Ontario, it would reduce emissions by 6,000 tonnes.

This is an interesting case. The city of Toronto fleet has 96 natural gas vehicles. These 96 vehicles reduce emissions by 400 tonnes per year. Pretty phenomenal, and it's an actual, it's real, it's happening now.

Just a quick look at what vehicles are available: you'll notice that the vehicles that are shown up here are vehicles that are targeted to high-mileage, fleet usage: the Crown Victoria, made right here in Ontario for all of North America; Ford and Dodge vans, the Dodge made in Windsor; the Ford and Chevy pickups and just most recently a Ford E-450. I've shown a picture of this vehicle with a transit body on it simply because it's an ideal vehicle for transit. In and around our city streets, this vehicle can reduce emissions significantly. It was just introduced in 2001 and it's now available through Ford.

Of course, we still have conversions. Conversions are there to meet a need, where people need to be able to have the distance in rural areas to run on natural gas as much as they can but then to switch to gasoline.

Just a quick review of what is available in the way of infrastructure: we have 66 public stations in Ontario—that's in Ottawa and the balance mostly in southern Ontario, from Kingston through to Windsor. There are 50 to 100 private stations. A private station is where a fleet would have a compressor on its own property and refuel from that particular compressor. There are 1,500 refuelling appliances. The refuelling appliance, as you're probably aware, is what's called a VRA. It can sit in your driveway at home or it can sit in the parking lot at your office and refuel your vehicle over time.

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The industry would like to make some recommendations to Ontario. We've broken them down into three sections: the no-cost options, the low-cost options and the cost-savings options. The reason we're asking for or making these recommendations is because people still need to be encouraged to buy natural gas vehicles. A natural gas vehicle has been available since approxi-

mately 1990 as a conversion, but only for the last three years as a factory-built vehicle. People don't like to go and purchase something that they add on to their vehicles. You'll have the odd person who does, of course, and they'll do it for fuel savings, but they want to be able to pick up that vehicle from the factory floor, from the showroom floor, and be able to drive it away knowing they have the full warranty of Ford or GM or Chrysler behind them. Those vehicles really have only been available for the last three years, and there's a fairly significant premium that has to be put on these vehicles until the number of vehicles gets into the numbers that can allow them to reduce the price of the premium that's being added on to these vehicles. So we still need to encourage people to purchase.

Recommendations:

Adopt programs to reward NGV drivers. As an example, allow them to use HOV lanes in Toronto. They do that in Vancouver. It's very simple; there's no cost to that. Let them do it. It's a nice reward for folks who drive natural gas.

Legislate an alternative fuels vehicle procurement act for Ontario fleets; these are fleets that are operated by the province.

Establish a revolving account fund to fully discount the premium cost of an NGV, repayable through the operating cost of the vehicle. In other words, you have a fund that would allow the premium cost to be reduced to that of a normal gasoline vehicle, and then pay it back with the savings that are created by using natural gas.

Alternatively but similarly, create a similar revolving fund to that of the Better Transportation Partnership operating in Toronto. Similar to the Better Transportation Partnership, NGV purchasers would purchase four vehicles but receive five, and the fund would replenish the purchaser from the lower operating cost of the five vehicles.

Low-cost options: as I say, we still need incentives to bring people in to the showroom floor to buy these vehicles. The low-cost option would be to provide full PST rebate for factory-built NGVs. On a Crown Vic, I think that might be in the neighbourhood of some 2,300-odd dollars.

Continue to provide the PST rebate on approved conversion systems, and by approved conversion systems I'm talking about systems that are brand new, new equipment that's added on to vehicles for that particular vehicle. They're approved because they are a closed-loop system.

Provide a PST rebate on infrastructure bills. For the building of a refuelling station, provide the PST rebate on that particular building.

How about toll-free access to the 407, or free access to provincial parks or provincial parking lots—very simple and easy to do—as well as reduced or no-cost licence fees and Drive Clean fees?

Cost savings options: take a leadership position in purchasing and using NGV in all provincial fleets, and stimulate the growth of the NGV industry in Ontario

through economic incentives and tax breaks directly to businesses. Ontario has a fleet of provincial vehicles. It doesn't have a lot of NGV vehicles in it. They're running on gasoline. Why can't they run on natural gas where there's fuelling available or where they can put in a vehicle refuelling appliance?

In my last slide, we just wanted to say thank you. The NGV industry and the CNGVA thank committee members for your resolve in recognizing the benefits of lessening our oil-based transportation fuel dependency and moving to a cleaner, safer and more secure domestically supplied fuel such as natural gas. We believe the leadership taken now by the Ontario government to adopt the recommendations as presented by our industry will be recognized in years to come as insightful and correct. Thank you very much.

**The Chair:** Thank you for the presentation. We have about one minute or so left, and in rotation, giving one party, one caucus, the time to speak, Mr Hastings has asked for that.

**Mr John Hastings (Etobicoke North):** Mr Finch, I wonder if you could go into some depth as to why we've heard for the last few months from a number of presenters about the advantages of natural gas and other alternative fuels, and I'm coming fast to the conclusion that a lot of the stuff we're seeing, including yours, about the things government can do—and some of them are good. Why do you think, in your own estimation, from your own experience, the financial services industries and the investment community are failing us in this whole area? You're going to need an enormous amount of capital for the distribution infrastructure of natural gas. I suspect that's one of the reasons, up until now, it's not a procurement item, either in statute or as could be recommended by this committee. Why do you think the investment community has shown—actually, we've invited them here—pretty well a complete indifference to this, not just to this committee, but to a lot of entrepreneurs who would like to get their innovative technologies in place?

**Mr Finch:** I don't have a lot of experience with the investment community. We have attempted to speak with people like Yorkton financial and they have, I think—I'd be stepping over my experience boundary if I wanted to speak to why they're not getting behind this, so I would appreciate taking that question back with me and getting back to you, Mr Hastings.

**Mr Hastings:** OK. Thank you.

**The Chair:** Any other comments? OK. Thank you very much. The time is pretty well used up. We appreciate your thoughts. We did have some concerns by some of the taxi drivers earlier, and then Drive Clean came in and presented, so you're rounding out the concerns about natural gas.

We also saw in Vancouver the use of liquid natural gas and were quite impressed with some of the things they are doing there.

**Mr Finch:** Yes, indeed. Vancouver is certainly on the leading edge. They've had their problems too, of course.

**The Chair:** With some of the diesel technology etc, yes. Thank you very much.

**Mr Finch:** Thank you.

## GLOBAL WARMING PREVENTION TECHNOLOGIES

**The Chair:** Our next presenter is Steve Poulos, senior partner, Global Warming Prevention Technologies.

**Mr Ian Hood:** My name is Ian Hood.

**Mr Steve Poulos:** I'm Steve Poulos.

**The Chair:** You have a total of 20 minutes. What's not used in your presentation will be divided equally among the caucuses. You've already stated your names, and the time is yours.

**Mr Hood:** How are you doing, Doug?

**The Chair:** Great. Super.

**Mr Hood:** You have a copy of this, I presume?

**The Chair:** Yes.

**Mr Hood:** As you know, I'm an environmentalist and have been involved with Queen's Park for a number of years on many, many different issues. I'm involved with this because it works. It's the answer to the global warming issues as far as the problems associated with landfill, which, by the way, are very, very serious, to say the least. The amount of emissions coming out of landfill are staggering. The problems associated with landfill and the global warming problems are beyond normal understanding, but they are extremely serious.

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This technology eliminates the need for landfill. It's over. It's no longer required. This will take whatever you want to put in it and after 12 hours it's reduced to its natural state, John, and it works. It's worked in Alaska. It works in Kentucky, Malaysia and so on. It's been out there for about 12 to 14 years. Kentucky is the latest plant. It just passed all the EPA standards. It's good stuff. What goes in comes out back to its natural state. Ash and the recyclables are all there. There's nothing left. It's reduced by 95% to 98%. It's provable because not too far away. There's a plant down in Kentucky. A bunch of people from Peel region have seen it. They know it works. Betty Disero wants to go down.

But I can only say this to you: the answer is before you. All the presentations I've heard here this morning are saying the same thing: we've got to do something about the problems of waste. And this here makes money. You put in 58 tonnes and you get 5,000 bucks in energy back—that's the equivalent—and what's left over you don't have to worry about putting into landfill. You can put it into cement or anything else you want to put it into. The ash—basically the best place to use it is in the production of cement—and the recyclables, just cans and glass, are left over. Everything else is gone.

I say to you that hazardous waste is included, medical waste is included. When they were dealing with this thing in Alaska, that was one of the biggest issues because of the native problems up there. They built it. The first plant was built in Anchorage, Alaska, because of the



problems of getting rid of waste in that climate. It worked for nine years, and it worked very, very well. In fact, this technology was very much a part of the cleanup of the Valdez oil spill.

So, as I suggest and can absolutely clarify and prove, it does work. And if it does work and it is the answer and it's cheap and economic—in fact, it's cheaper than landfill in some cases. Toronto right now is paying \$62 a tonne to send it down to Michigan. You can pretty well get rid of a tonne of this stuff for 32 or 34 bucks. It's not a great science. In a sense it's so basic. You put the stuff in, you starve off the oxygen, you put some heat to it, come back 12 hours later and you've got nothing but the energy left over that you can use in just about anything you want. So I leave it up to you guys. If you want to ask any questions, I'm here.

**The Chair:** Thank you very much. We have about seven minutes or so per caucus. I guess we'll start with the government side? Maybe we'll start with the opposition then, OK? Mr Parsons.

**Mr Parsons:** I'm not sure I understand enough yet to ask a question. I guess what I'm trying to picture, and can't quite imagine, is how much garbage comes out of Toronto in a day.

**Mr Poulos:** It's about 2,000 tonnes.

**Mr Hood:** It's around 2,500.

**Mr Parsons:** I can't picture that in terms of how high a mountain it would be.

**Mr Hood:** Oh, it's huge.

**Mr Parsons:** I would think so.

**Mr Hood:** You've got 400 trucks going down to Michigan every day.

**Mr Parsons:** So you would physically require what volume?

**Mr Hood:** They can take it all.

**Mr Parsons:** But you're going to need a plant the size of this building.

**Mr Hood:** No, these are cells. They can be located right now, as far the depots are concerned.

**Mr Parsons:** So there wouldn't be a central one? You would have them in communities?

**Mr Hood:** We can put them anywhere and, by the way, any size. You can make it for five tonnes, 50 tonnes, 100 tonnes, no matter what. It really is good for hospitals. That's what they were doing in Alaska, because of all the medical waste. Because of the special considerations in it, it separates the nuclear. No nuclear waste can go through this system, because of all the different technologies that are built in to catch it. Right now a lot of the nuclear stuff coming out of hospitals and so on is ending up in landfill—serious stuff. This doesn't happen.

**Mr Parsons:** This requires recyclables to be skimmed off first?

**Mr Hood:** If you have anything nuclear going through that, it picks it up just like that.

**Mr Parsons:** I'm thinking of glass—

**Mr Hood:** All that, yes. It takes care of the glass, it takes care of aluminium, it takes care of any recyclables.

If you put a pen in, the only thing that's going to come out is the top. Everything else is gone.

**Mr Parsons:** So the plastic is gone.

**Mr Hood:** The plastic is dissolved into an energy source, and what you've got left over is a tiny bit of ash. It's composting, but you escalate it. You starve off the oxygen, and you don't create what we call a combustible or incineration process. We don't need that. The last thing we need is that stuff going into the air. The emission standards we can give you—the latest out of the United States with the EPA—met every requirement and beyond.

**Mr Parsons:** So it's sealed in a chamber, and the oxygen is extracted from it.

**Mr Hood:** That's correct.

**Mr Parsons:** And what happens over the next 12 hours?

**Mr Hood:** It just decays naturally with heat of about 900 to 1,200 degrees.

**Mr Parsons:** And the source of the heat is?

**Mr Hood:** The source comes from the actual energy itself. It breaks it down because you add heat to it, but you don't create what we call ignition. It heats it up.

**Mr Parsons:** But you're adding heat from what?

**Mr Hood:** You add heat from different sources. You can use natural gas for a short time to heat up the cell. After that, once you starve it off it takes its natural course.

**Mr Parsons:** Do you have a system working somewhere?

**Mr Hood:** Yes, there's one in Kentucky.

**Mr Parsons:** In Canada?

**Mr Hood:** In Canada, Peel right now wants to build one. Larry Conrad and some others went down to take a look at the new operation in Kentucky. They came back and the only thing they want to do now is, get moving. They came back with a bottle of ash and some cans and huge bottles. They couldn't believe what they had seen. Mr Conrad heads up the waste management division of Peel. Right now, their big concern, as you know, is that Britannia is closing in June and the \$62 they're talking about now to send it down to Michigan is unacceptable, so they need something.

**Mr Parsons:** Do you see this as a viable option for all the garbage, or for things such as hospitals?

**Mr Hood:** Anything. It doesn't make any difference what goes into it—hazardous waste, medical waste, tires, you name it—it's gone. At the end of the process, it speeds up the natural evolution of composting to a 12-hour period. At the end of the day, it's no longer there. When Larry and some other people from Peel went down there, they could not believe what they saw.

**Mr Parsons:** What are the barriers to its happening now? Are there legislative barriers?

**Mr Hood:** No. Right now it's, let's build a plant and then let's start producing them where we need them. You're talking about the Ford Motor Co and Chrysler. They're concerned about the tremendous hazardous problems they have with a lot of their waste. You can

locate one, as I said: two tonnes, 20 tonnes, 50 tonnes, 100 tonnes, whatever you want. At the end of the day, it's the same thing: it produces energy. It's good for greenhouses. Leamington right now is in big trouble.

**Mr Parsons:** But there are no legislative barriers to its happening?

**Mr Hood:** We've got to go through the MOE. We were over there talking to them, and as far as the overall results from the air emissions in the United States are concerned, they're all here. Here are the air emission standards from all over the world, from every place they've ever been, all the EPA and so on. It isn't as if it's new; it isn't. The only thing is, we don't have it here and we need it here.

What's it like in the summertime downtown? Right now you've got another large company, EnWave, that wants to turn on 123 huge buildings. Can you imagine stoking up those furnaces? What would it be like down there?

We're in trouble. Right now, natural gas is causing a lot of dilemmas because of the cost factors, and we can only see it going higher. This can take energy. Take the stuff we're throwing away and the methane coming out and just put it back into something we can use and make some money: \$5,000 for 58 tonnes, John. That ain't bad.

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**The Chair:** OK. We will move on to Mr Ouellette, but just before we move over, we've had presentations, very helpful to the committee, on plasmification; we've had presentations on steam pulse reformation. Is this connected with either of those processes?

**Mr Hood:** No. I've looked at 242 different technologies. You name it, we can put it forward here. There are many different views and opinions, but the cost factors are very important. We can't get into \$80 or \$90 a tonne. We have to get it down there where it's economically feasible and cheaper than what we're now putting out. It's got to work, and it cannot have the pollutants that some of these other processes produce.

**The Chair:** Thank you very much. Mr Ouellette?

**Mr Jerry J. Ouellette (Oshawa):** How long has it been in Alaska? I think you said the first one was in Alaska.

**Mr Hood:** The first plant was built in 1989 in Anchorage.

**Mr Ouellette:** In 1989. I don't understand. It seems like, you know, one of the too-good-to-be-true things.

**Mr Hood:** Oh, it's real.

**Mr Ouellette:** Toronto is obviously actively looking for methods. How come Toronto is not utilizing it?

**Mr Hood:** Betty Disero wants to go down. She was going to, but the mayor said because of 9-11 she couldn't go because there was a travel thing.

**Mr Ouellette:** There must be some other reasons why they're not adopting it, then.

**Mr Hood:** They are. We've been before them. They're actively pursuing it. It's a part of their report. No, no; it's being actively pursued there, and also in Peel. We've made presentations in—

**Mr Ouellette:** You said you've had it going—I'm just trying to find out the reasons why. Somebody will come forward at some time and tell us why, but Toronto may have some reasons. You said it's been going since 1989, yet this is 2002. So just because of September of last year, it should not be a deterrent.

**Mr Hood:** No. The reason Betty didn't want to go is because the mayor said she couldn't go down because of the travel thing. That was right after; there was an appointment down there. But if you want to go down and see it—I mean, it's in many places. They've got Alaska, in Barrow right now and Anchorage. We also have one in Malaysia. In Israel they have a 50-tonne-a-day plant that is absolutely second to none, OK?

**Mr Ouellette:** Does the cost you mentioned include the set-up costs for the plants, or is that after the plants are established? Is that part of the reasons why?

**Mr Hood:** The factors that we're talking about as far as costs are concerned, that's the financing of it, the operation. It's so simple because the computer technology is very, very—when I say to you that the average person who runs a computer can run the operation, that is absolutely true. There's no great sophistication involved here. The simplification of it all is you have a cell, you put it in, you starve the oxygen off, you make it airtight and it decays.

**Mr Ouellette:** You gave us a cost per tonne. Does that include the actual plant cost to establish it?

**Mr Hood:** Yes, everything, all included—building, everything.

**Mr Ouellette:** So in order to be cost-effective, what's your break-even point? You mentioned a 50-tonne plant.

**Mr Hood:** A 58-tonne plant. We've got a 58-tonne plant now being proposed for Peel; that's why it has 58 tonnes. It gives you—hold on a second. Steve, have you got that energy package? Could you give this gentleman—have you got it there?

**Mr Ouellette:** This one?

**Mr Hood:** No, there's another one.

**Mr Ouellette:** In the single sheets?

**Mr Hood:** Yes. If you take a look at that, sir, that's the energy values. You've got, for instance, 58 tonnes. It gives you about \$5,000 a day in revenue, OK? That is in regard to the energy that can be produced, and the best part about it all is that when you're finished, there's nothing left over. All you've got is some cans, and even the paint on the cans disappears. There's nothing left—cans, ash and glass. The cement companies love the idea. Right now they want to put this one that we're talking about, in Peel, in the pit out there in Caledon, that great big pit where all the aggregates come from.

This really works, and you know something? I wouldn't be here supporting it, I can tell you that, unless it did. I've been involved with the old-growth forests. I go back to many other different issues. As far as environmental concerns, nobody has been dealing with these things over the years more than I have, and many others like me. We care. Right now we need an answer. We've got 1,800 people here dying because of the air, and what



are we going to do after Keele, when Keele landfill closes, and Britannia? We've got to have some answers, and fast. We can't be sending it down there to the States, and you know that the Adams mine issue is dead. So we've got to have answers. That's why it's fine to criticize, but you've got to find solutions. And this one really works. It really does. It's going to work and it's going to make the province money. That's the best part of all this: you're going to make money.

**Mr O'Toole:** Money. That's music to my ears.

**Mr Hood:** We're going to make money. We really will. I can assure you, everything in there is 100%, and all of the emissions standards that you need to know are right here, from Alaska, Malaysia, Israel. I'd like to know why it isn't here. I'm hoping we can get to those. Peel is going to go ahead with it quickly and get the first one built. But these things can be built very quickly. There's no great sophistication involved.

**Mr Hastings:** Could we expect that Toronto will have one up in a year, then, constructed and operating one year from today? There are no problems, you say.

**Mr Hood:** No, let's get it going.

**Mr Hastings:** Go ahead. What's missing from your equation here? Capital?

**Mr Hood:** Well, there's always that little—

**Mr Hastings:** Capital?

**Mr Hood:** No, there are no worries about capital. There's a guy down there in Kentucky right now and he's—

**Mr Hastings:** Just get him right up here and get going.

**Mr Hood:** If you want to build it, the state can build it or—

**Mr Hastings:** The state? No, no, no.

**Mr Hood:** Right now out there, they want—

**Mr Hastings:** Private enterprise has to do it.

**Mr Hood:** Yes, sure. Right now—

**Mr Hastings:** You represent it. You are your solution.

**Mr Hood:** Right now in Peel, John, they're talking about either they want the manufacturer of this one down in Kentucky or Peel wants to do this themselves, too. They want to build it themselves. So it's sort of back and forth about who wants to do it.

**Mr Hastings:** Just go ahead and do it.

**Mr Hood:** You're going to help?

**Mr Hastings:** What forms of help are you looking for? Financial assistance? Grants? Faster write-offs?

**Mr Hood:** No, none of that stuff. It's not necessary.

**Mr Hastings:** Declassification of the fly ash as a hazardous substance?

**Mr Hood:** It's not hazardous.

**Mr Hastings:** Yes, but the environmental mindset in this country would suggest that possibly it is.

**Mr Hood:** When you see the drawings and the backup systems, as far as that particular consideration, no way.

**Mr Hastings:** Good luck.

**The Chair:** OK, thank you very much for your presentation. We appreciate you coming forward.

Mr O'Toole, would you take the Chair for the next delegation?

**Mr O'Toole:** I certainly would be pleased to do that.

## PROVINCIAL COUNCIL OF WOMEN OF ONTARIO

**The Acting Chair (Mr John O'Toole):** The next deputation is Gracia Janes. Welcome to the committee. If you could give your name for Hansard. You have 20 minutes to make your presentation, of which you can use all yourself or leave time for questions from members.

**Ms Gracia Janes:** Thank you. My name is Gracia Janes and I'm the president of the Provincial Council of Women of Ontario and a vice-president of the National Council of Women of Canada, with responsibility for convenors of environment, public safety and housing. I was also the coordinator of a national council of women energy conservation project for over two years between 1992 and 1995.

I draw your attention to the five enclosures with our package, particularly the brief by Dr John Bacher. He was the researcher in our energy conservation project. As well, he is the author of *Petrotyranny* and the co-author of *Get a Life*, first edition, both green environmental solution-oriented books.

The Provincial Council of Women of Ontario commends the select committee for this long-overdue review of alternative energy sources, seeing it as an ideal opportunity to develop an ambitious and visionary energy strategy. If such a plan were to be completed over the next 30 years, in this the most populous province in Canada and the industrial engine of the country, Ontario would lead the way for other jurisdictions and help ensure an environmentally secure future for all Canadians.

I just want to note here that we're not experts, as a council of women, but we do represent many thousands of women across Ontario from all walks of life, and therefore we could be considered to be somewhat of a public opinion kind of group on these issues—a very broad-based group at that.

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The issues at hand touch upon a host of interrelated areas such as pollution, global warming, urban sprawl, public health and other social and environmental and economic issues of importance to Ontario citizens. The provincial council of women has supported in the past, due to these very concerns, the phase-out of nuclear power, the use of alternative sources of energy and energy conservation, a stop to urban sprawl, preservation of prime farmland, strict regulations to curb the degradation of land, air and water, and initiatives to preserve and enhance our natural resources for future generations. We are concerned that the bulk of Ontario's energy needs are met through the use of non-renewables and environmentally destructive energy sources. We are very concerned about the impacts of oil, gas and nuclear.

The latter is extraordinarily costly, has worrisome health, safety and environmental risks, does not significantly alter our capability to lower greenhouse gas

emissions and has become a sought-after business opportunity for plant renewal and expansion in any privatized energy market. If unchecked, we could soon see the renewal of aging nuclear plants beyond a safe lifespan, the construction of new plants and a growth, rather than a curtailment, of energy use and waste in Ontario and the USA.

All of Ontario's traditional sources of energy have been heavily subsidized for many years. In contrast, renewable energy sources and energy conservation, which have the potential to protect the environment, lower health costs, reduce global warming, advance technological markets and job creation, reduce acid rain and conserve scarce resources, have been neglected for far too long. In light of this, the council of women asks that this committee give renewable energy and energy conservation the green light to move on to a level playing field and into the vanguard of Ontario energy policy and practice.

The council of women has used its policies for many years to act in the renewable energy and conservator mode. For instance, in 1978, we asked the government of Ontario to shift its investment priorities to energy conservation and development of renewable energy sources in lieu of further nuclear development. Following our policy in 1989, the National Council of Women of Canada made a brief to the federal standing committee and noted the benefits of energy efficiency and conservation, such as stretched fuel supplies, decreased automobile pollution, reduced fossil fuel emissions, reduced home and industry heating costs, increased jobs, lower dependence on foreign fuels and a limitless supply of alternative sources, which lessens the threat of failure of supply.

We agree with energy consultant Jeff Passmore that the barriers to energy conservation and alternative energy use are not technical, attitudinal and financial, but purely political. "For instance," he said, "solar fuel goes head to head with diesel fuel in remote communities in northern Canada. Diesel fuel is tax-exempt for the generation of electricity and solar is not. Automatically photovoltaics is 13.5% more expensive." About nuclear power's role in the reduction of CO<sub>2</sub> Mr Passmore said, "Nuclear energy is a non-starter. To offset 5% of 1990 global carbon emissions, world nuclear capacity would have to double."

PCWO has made many presentations to government committees on these issues; for instance, the select committee on Ontario Hydro and nuclear affairs in 1997 and the National Energy Board consultations on Canadian energy supply and demand to 2025 in 1998. As well, we've sent many letters to the government.

In a practical way, from 1992 to 1995, council members across Canada were surveyed on their energy use and habits. Local public forums were held and a quarterly newsletter, *The Conservor*, was published. It is against this lengthy background the council makes its remarks. Our observations may well provide some insight into how the public views the important issues that are being explored, their support of any chosen plan and the ways that they could be part of the solution.

The broad policy objectives for any future framework: we agree wholeheartedly with the general broad public objectives. Nevertheless, the fact that Ontario Power Generation considers nuclear power to be part of the green power mix makes it very clear to us that nuclear could well continue to dominate the energy field. This runs directly counter to the commission's objectives. We cannot state too strongly the need for a provincial policy to support reductions in Ontario's substantive 40% to 60% reliance on nuclear energy.

We are concerned that there appears to be a move provincially and federally, without public discussion, to maintain the existing over-reliance on nuclear power and to enhance and expand its use. For instance, Pickering will be restarted, British Energy is now in charge of the Bruce nuclear plants and has expressed interest in the Pickering plants and British Energy has also, according to the *Toronto Star*, signed partner agreements to develop the next-generation nuclear technology.

PCWO believes the enormous investment in nuclear power has been the most significant factor in the extraordinarily onerous debt for Ontario citizens and the lack of investment in alternative forms of renewable energy. Ontario Hydro has promoted nuclear power as a cheap, safe, clean form of energy and encouraged its inordinate and wasteful use.

Promoting the supply of green renewable energy: PCWO is disturbed that, in its commentary, the committee links the "opening of the market" with the acceptance and support of alternative energy sources. This gives the appearance that the committee is part of a government justification of the opening of the market and the privatization of Ontario's publicly owned generating and transmissions assets. A green renewable energy plan should not rely on an open market, but should rely on a publicly owned system, we feel, which fosters more green energy.

We note that mega-dams and nuclear power are both in decline in most of Europe and that, according to the Royal Society of Canada's greenhouse gas emissions panel, every dollar invested in renewable energy displaces seven times as much CO<sub>2</sub> emissions as the same dollar invested in nuclear power.

Regarding your questions, on provincial strategies we feel that a provincial strategy must be linked to the support of the Kyoto target and be developed right away, and experts should be consulted.

Regarding which fuel to use first, we think each of them will fill a niche, and combined they could well replace our heavy reliance on fossil fuels and nuclear power sooner rather than later, with less threat of interrupted supply.

It is vital that renewable, clean sources of energy be supported as needed, and there is a need to broadly popularize new technologies. We are particularly interested in the green communities program, which was very successful when it was financed by the provincial government early on. I think some of the programs are still in existence.



The total level of assistance to be given should be whatever is needed. We notice that in the UK, a climate change levy is in effect, and the proceeds here, if we were to do such a thing, could well be put toward renewable sources of energy.

The province should also back up its energy-conscious Smart Growth planning policies with strong land preservation policies and a concentrated effort to reduce expenditures on highways. It should develop regulations to limit sulphur levels in gasoline to at least those of other provinces. It should use government buildings and services to pilot and popularize alternatives and place strict emission caps on energy generators.

The green power procurement policies and renewable portfolio standard: we would support that. The key here would seem to be wherever you can get this energy, and to meet certain targets regardless of the source of supply. We note that many American states are setting renewable portfolio standards, and "green" doesn't always contain hydroelectric projects, large ones or nuclear.

We believe and we agree that there should be a full life cycle accounting for all energy sources to know the true costs and to overcome political barriers. It should include health costs from incidents of low-level ozone; the costs of revamping, reactivation and decommissioning of nuclear wastes and nuclear waste disposal; energy efficiencies; the savings that could be achieved through the use of renewables; employment potential; projected market share and income for new technologies; and costs of waste.

With regard to the latter point, we note that a Toronto Star article of August 26 said, "A US study has predicted that by 2005, Americans will waste almost seven billion hours a year sitting in stopped-up traffic. The cost to the country," in wasted gasoline, wear and tear on cars and time, "will be \$115 billion a year."

As well, a January 12 Globe article drew attention to light pollution, which is often wasted energy.

We think the province, its ministries, agencies and boards should determine ambitious procurement targets and programs.

Alternative fuel-energy research and development programs: given Ontario's economic reliance on a healthy automobile sector, a research and development program could well tap into the hydrogen fuel cell. Ontario could encourage transportation authorities to convert bus fleets and could invest in the technology developed by Niagara Falls native Geoffrey Ballard. It could also renew its sponsorship of the institute of hydrogen studies and assist in the creation and operation of significant fuel cell demonstration projects.

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Energy conservation and efficiency, and education and consumer awareness: we're very concerned about this. Canadians are energy gluttons. The potential for energy efficiency measures in Canada is enormous, ranging between 30% and 50% over several years. The longer we wait, the less apt we are to meet any kind of projections or targets. As Jeff Passmore noted, "The nice thing about

efficiency is that it is irreversible." Regardless of what happens to energy prices, after it is done, it's very rarely undone.

With respect to public involvement in education, we would encourage this government to show the cost-benefit ratio for alternatives to consumers. Make the energy connection for them. Publicize the available technologies, give information and incentives for owners and builders, encourage research and development, and invest in improved transit systems.

We recommend that any energy strategy should include a consumer survey such as that done by the National Council of Women of Canada, which might clearly identify certain niche areas where the public use and acceptance would signal a need to move quickly in this direction.

In the interests of time, I'll leave the various recommendations about the different sources of energy to the committee to read, and I'd like to sum up.

Overall, we find that the use and waste involved in the older, more pollutant, non-renewable fuel sources is unsustainable. We need to be far less addicted to and reliant on them.

We need to invest in the renewable sources. There are limitless opportunities for savings, job creation and environmental benefits, particularly in solar, cogeneration, energy conservation and wind.

We need an ambitious long-term plan. We should involve the green energy experts. To date, we've just seen the old-style experts, and it's the green ones that you need to know. I'd highly recommend the Hansard report from the 1989 global warming committee at the federal level. They were interviewing various experts at that time. It's a long time later, but it's still relevant.

You should continue to investigate—and I really commend you for this—and to observe first-hand the kinds of technologies that are used and what is practical, and to go to places where they are making extraordinary efforts. I would recommend you go to Iceland, which is making an enormous effort, but it's a bit far and you might get criticized for doing so. They are making every effort to rule out completely the use of the traditional sources of energy. They're moving to the fuel cells and other methods.

You should involve the general public in a more direct way. Together, we can set the trend for the next generation of energy use, one that is sustainable and protective of the citizens of Ontario and Canada for hundreds of years to come.

**The Acting Chair:** Thank you for your presentation. That leaves exactly six minutes, three minutes for each side. There are only two caucuses here.

**Mr Ouellette:** Just two quick questions. You mentioned the north, regarding the solar power being taxed as opposed to the diesel power. What jurisdiction was that in? Is it a provincial or a territorial government that charges, I think you said, 13.5—

**Ms Jones:** This is in evidence from Mr Passmore at the global warming hearings, and I have that with me. He

didn't say exactly where it was. I just presumed it was in Canada, and probably the territories. But in northern Ontario, is there a level playing field there?

**Mr Ouellette:** I've been to a number of the northern communities, and I think it's 35 or 38 northern ones that are basically dependent on diesel generation. I have yet to find any in Ontario that are dependent on or utilizing solar power. I have seen some that do use or try to use wind power. I was just trying to find out some of the details about that, because I hadn't heard of anything like that taking place in Ontario.

The standard policy, official, unwritten policy, in my understanding, is that any new powers or generation coming on are basically non-taxed for the first five years in order to allow them to get established. After that, they review the tax implications for that. So I was just trying to find out—

**Ms Janes:** Is that at the federal level you're talking about?

**Mr Ouellette:** That was provincial, and the feds more or less follow along that.

**Ms Janes:** I was thinking about federal, and I'm just taking his word as an expert. It may have changed since he made that statement to the committee. I'd be interested in finding that out.

**Mr Ouellette:** Yes, I haven't heard of any such jurisdictions.

**Ms Janes:** Certainly the investment in the renewables took a real nose-dive somewhere around 1984. Once the fuel crisis was over in the 1970s, it really dropped.

Also in that light I just wanted to note, on page 17 of my brief, Mr Passmore indicates that when people complained about the technology and using it in the north, you merely tilt the connector at an equivalent to the latitude you find yourself in. So in Canada, in southern Ontario, you're looking at tilting it at 45 degrees toward the south and you accomplish 80% solar gain of Miami. So the technical things are there and solar could be widely used in the north.

**Mr Ouellette:** My other question is, you mentioned the sulphur content of gasoline. What do you think is a reduction to equate to the other provinces? What do you think the sulphur content of gasoline should be?

**Ms Janes:** Well, we're not the experts. That's what I indicated to begin with. We know, though, that the sulphur content is higher in Ontario than elsewhere in the country, in the various provinces. We're not aware of the exact details. I'm sorry.

**Mr Ouellette:** The feds have brought forward legislation that requires Canada-wide legislation on that in order to reduce it.

**Ms Janes:** Good.

**Mr Ouellette:** I know that the province—we had a resolution come forward requesting that, and that came from a lot of the manufacturers as well, because in order to produce cleaner fuels, cleaner vehicles, they require lower sulphur content as well.

**Ms Janes:** Excellent. That's wonderful.

**Mr Parsons:** I want to first of all compliment you on this report. A lot of people have put a lot of time into this. Thank you for it.

I have two questions. One is the privatization of Hydro and the breakup of it. Am I interpreting correctly that your concern is not that it will be neutral but in fact may be detrimental to the production of green power?

**Ms Janes:** Yes.

**Mr Parsons:** That Ontario Hydro has itself taken a lot of initiatives that could be stopped with the—

**Ms Janes:** They have taken a number of initiatives, but the track record in England of British Energy, for instance—the regulatory body commented that corners were being cut and they're very concerned about contracting out and layoffs etc. The bottom line is profit.

**Mr Parsons:** Right.

**Ms Janes:** And I think this is the overriding theme. I know you can have regulations, and this is supposed to keep everything in line, but we really believe that if Ontario Hydro had been controlled, if it had been regulated more firmly, we wouldn't have had some of the difficulties we've had that led to the shutdowns etc.

We really believe that you're not going to see a move toward more greening through the private sector. We think Ontario Hydro, as we call Ontario Power Generation, has been doing a good job and can move further that way and should be moving into the renewables and into the other technologies.

**Mr Parsons:** Since I agree with you, you're obviously right, so thank you.

The second question has to do with life cycle costing where green power may not appear to be the most economical, and yet—my background has been in education, the number of children who carry puffers around schoolyards now who didn't 20 years ago, yet everyone says to me that we're not able to actually calculate what producing electricity by coal costs, what is its social effect, what it costs us in the health care system. I appreciate what you're suggesting. Have you seen or had access to or—what is the full cost of electricity produced by coal?

**Ms Janes:** I don't think anybody has done this. I think it would be an enormous task to do so but I think it's absolutely essential. You take on these tasks. If you're going to do the whole task and do a good job, this is a key thing. It's going to be very difficult to persuade politicians. I don't think you'll have trouble with the public, but you will have trouble with politicians and people in the energy field. You have a lot of them lobbying to keep with what's going on now. It's in their own interest. But in the public interest I think it's very vital that you do such a study and that you gather—a good researcher or 100 researchers could gather those statistics, and in these hearings in front of the standing committee there were data, that's for sure.

**Mr Parsons:** OK. I'm hearing the obstacles to getting the data, but I think it's vital that we get it.

**Ms Janes:** Yes.

**The Acting Chair:** I'd like to thank you, Ms Janes, for your presentation.



**Ms Janes:** It's very thoroughly referenced, so if you want any of this background, I'd be glad to get it for you.

**The Acting Chair:** Excellent report. Thank you very much.

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#### ANDY JANSON

**The Acting Chair:** The next deputation is Andy Janson. Welcome, Mr Janson. Would you leave your name for Hansard, and you have 10 minutes to use as you wish.

**Mr Andy Janson:** My name is Andy Janson. I'm coming forward here with a number of things I was originally keeping secret, pending the free market identifying them. If I could, since 9-11, I've decided to come out and suggest a couple of things.

I have a rather odd hobby of collecting obscure and technical books that are long out of print and I've come across a couple of very interesting things that have been long forgotten. If I could put this forward perhaps to Ontario Hydro, this is close to one that I originally came up with.

In 1923, General Electric found a way of doing a 50% increase on the production of electricity by changing the medium that they used to produce steam. Would anyone care to look at this? It goes into a great deal of detail. In Hartford, Connecticut, and later on in Schenectady, New York, they changed the very medium that they used to produce electricity and it went up by 50% immediately. The problem is, it was cancelled in 1925 due to leakage, if you can envision, in 1924, a steam locomotive sitting in a station, leaking from all its joints, all the steam fittings.

But technology is different now and this has long been forgotten. If it were possible to speak to Ontario Hydro or to propose this to Ontario Hydro, I can see a way of making a number of things, perhaps even natural gas, far more efficient in producing electricity, if anyone is at all curious.

A number of other things that I'm working on and have been working on for a number of years are based on oxidization. That's the converting of inert substances that never exist with a particular catalyst. They never occur. If you're at all interested, I have some industrial photographs of what happens when even minute amounts meet together and destroy everything around them. I found a way of producing this on a very small cycle. The scale would be 0.0077 cubic centimetres per cycle, about the size of a grain of salt. This inert substance, actually quite a common substance, can immediately—the condition is called super-decomposition. It immediately expands at several times the speed of sound—I believe it's seven times the speed of sound—to an area of approximately a cubic metre, a huge rate of expansion.

I've done some feasibility studies on radically modified conventional internal combustion engines. My own history with engines is that I have built one that is different from this, but it was 29.41% more efficient and it

actually consumed the fuel at such a rate that even with an open exhaust there was no shock wave from the open exhaust. It was just a quiet roar of heated air escaping, which makes the muffler industry almost redundant. The engine is actually sitting in a shop just outside of London, Ontario. It's very difficult to pursue anything in the free market, because nobody was really prepared to deal with change until 9-11. I think we're seeing some real interest in this.

I am prepared to meet with anybody, publicly or privately, on a number of different things that I have found and have confirmed. If you're at all interested, I can touch on a number of these right now.

**The Acting Chair:** It's your 10 minutes. You can use it as you wish.

**Mr Janson:** As I wish. OK.

There are a number of lost technologies that are sitting quite dormant, something as simple as sleeve valves that were replaced, some of the really obscure technologies that at the time never actually could work because the technology wasn't there.

If I dare, I can give you an example: the War of 1812. Even here in Canada we knew enough about glass, we knew enough about lenses, we knew enough about generation, we knew enough about rubies and we knew enough about vacuums. We could have produced lasers in 1812, which would have been a wonderful military application in the War of 1812, but we never got those people together.

There are a number of technologies right now all out wandering around in a variety of fields that have to be brought together, and I think I've touched on some of it here. I can give you an example. It's a substance called calcium permanganate. It's literally concrete and the concrete is mixed, but you can never mix it with water; you have to mix it with another chemical, which I'm a little reluctant to reveal at this point. It is otherwise a household substance. You mix the industrial version with concrete and produce pellets. These pellets are very porous but they're an incredible oxidizer.

You can take another substance, which I should also not reveal, and through a simple length of tube—I actually have the chemical formula for it here—you can go from room temperature to 1,800 degrees, but it does so with no toxic—it produces steam at 1,800 degrees. Steam normally occurs at 100 degrees Celsius at one atmosphere. Even at one atmosphere, it goes to 1,800 degrees immediately. The thinner your atmosphere, the higher the pressure. It is supersonic. Actually, it's hypersonic. You can see shock waves in the cone it produces, multiple shock wave diamonds as it proceeds down.

It is a substance that you would not think of. It's actually quite inert, but any inert substance placed in an extremely hostile environment will react, and they produce heat and pressure. If harnessed correctly and submitted in the correct sequence into the correct medium—and the medium is probably a turbine; turbines are probably the most efficient for this. This particular

one I'm working on cannot be done continuously because it will eventually destroy the device it's working on, not by corrosion but just by sheer heat. I tend to use it in cycles and I go into, unfortunately, a huge amount of detail about that.

But there are other forms of energy whose exhaust is in fact superheated steam and trace amounts of CO<sub>2</sub>; you know, soda pop bottles. The original one here from Hartford, Connecticut, if you were to, say, have Ontario Hydro utilize this—my original plan was to run it as a vacuum with the medium, but it seems that even if you don't run it as a vacuum, you're still 50% more efficient. With the new technology for sealing pipes now, leakage is no longer a concern. After all, we are sealing toxic substances, and this is not toxic.

There are a number of lost technologies, a lot of them from the 1930s, if you're at all interested, that were known, including a device that became obsolete—actually, I do have a photograph of it here—that allows water to flow uphill under the weight of its own water. Contrary to what you have been told, water will flow uphill. It's a simple device known as the hydraulic ram. If you can imagine the old train stations with the big water tower, prior to the invention of electricity, this is how they pumped water up these water towers. It's a resource that was long lost and I think forgotten. There may be a few museum pieces, perhaps. But with the new technology and the new understanding, I think this could be developed, if nothing else, to pump water uphill for reservoirs to run turbines. It's simple in remote applications.

There are a number of lost sciences. You look at this today and you go, "What were they thinking at the time?" They couldn't do it because they didn't have the physical technology at that time to do what they were proposing doing here, but today we do—some of them, not all of them. Some of them are still a little bit in the future, including a very interesting one here. I shouldn't go into detail on that one.

As it stands now, the internal combustion engine as we know it, the gasoline version, is about 15% efficient, the diesel about 17% efficient. They are getting progressively better, but that's not enough efficiency. There are alternatives out there. Whether you want to go with the alcohol or you want to go with the propanes or you want to go with any of the compressed gases, that can be done. There are a lot of lost things, such as sleeve valves. They are so simple. In 1945, all the British radial engines were sleeve valves and they became obsolete with the jets. They were the most efficient use of gasoline in aircraft at the time.

#### 1200

There are a number of ways of taking something which has energy in it and extracting the most out of it. You can never achieve 100% yet—but even a simple one with concrete pellets, if you can envision an engine where you're constantly putting a tube in and reinjecting pellets to produce steam. The concrete industry has probably not even recognized, because it has lost—the

great irony being the fastest manned aircraft in the Second World War was powered by that particular engine. I have some observations on that right here.

**The Acting Chair:** Thank you very much for bringing your insights and history perspective to the members of the committee. I suspect you've left some address or whatever with the members of the committee or the Chair. If other members wanted to pursue that, we'd make sure that happens.

**Mr. Janson:** I'm willing to meet with anyone publicly or privately and discuss any of these.

**The Acting Chair:** Thank you very much for your presentation to the committee today.

#### FUEL CELL TECHNOLOGIES LTD

**The Acting Chair:** Our next presenter is Barbara Haines from Fuel Cell Technologies Ltd.

**The Chair:** Thank you very much for coming forward to present. There's a total of 20 minutes for your presentation. Whatever time is left over we'll divide evenly between the caucuses. Please state your name for Hansard and any position. The time is yours.

**Ms Barbara Haines:** Good morning. My name is Barbara Haines. I look after investor relations for a company called Fuel Cell Technologies. We're based in Kingston, Ontario. We're a publicly traded company. The operating part of the company is Fuel Cell Technologies Ltd. It has a history that goes back into the 1980s. We have a group of really expert engineers and scientists who have worked in the area of fuel cell technologies for decades. We had a technology that was aluminum energy based and it was used for unmanned underwater vehicles and remote communication locations. The aluminum technology is a more limited-market, custom-order, one-off kind of industry. It's for underwater exploration for scientific purposes, for military purposes. Aluminum has huge amounts of energy within itself, so it's ideally suited for these very complex operations.

However, the opportunity to grow a larger company within the energy industry lies with a technology called solid oxide fuel cells. Most of the information in the market on fuel cells stems from the Ballard success in getting the industry known, the technology known. The solid oxide technology is still a fuel cell, it's still an electrochemical reaction without combustion, but it's a much more rugged, robust, versatile technology.

We had looked at and reviewed your report. Certainly, the range of input that you reviewed in that report led us to want to present to you today. Our technology is for distributed generation. This is going to be a term you're going to hear, and I'm sure you've heard it time and again in your hearings. Distributed generation will allow people to put our product in their basement and take out their furnace and disconnect from hydro. We will have our first installation in Stockholm. We will ship two units to be installed at the end of July this year for the celebration of Stockholm's 750th anniversary. We signed the



deal at the end of January this year. It was an international competition and we won it.

We're working with Siemens Westinghouse Power Corp. They have 30 years' experience doing solid oxide fuel cells. They've spent half a billion dollars on the development. We weren't going to reinvent the wheel on that one. We did the design of the unit. It's our concept, our design, our engineering. I guess the easiest way to view it is, we're the General Motors of the fuel cell industry and we buy our engines from Siemens Westinghouse. It's a joint development project and it shows by the fact that we in Kingston are working with a company in Pittsburgh that's based in Germany and have our first installation going in in Stockholm. There is an imperative for Ontario to move to be part of this industry, because it will be huge, it will be billions of dollars.

The demand for power is such that installation of traditional infrastructure just isn't going to meet with the demands of society. Twelve per cent of consumption of electricity now is for computers and computer-assisted machines. This is something we didn't foresee. It has to be reliable, well-conditioned power, and it has to be uninterrupted.

To meet the demands not only in North America but around the world where infrastructure does not exist or is in tatters, this industry will do the cellphone leap right across the infrastructure. We'll have distributed generation around the world, and it will happen very quickly. The ramp-up years are now.

We're also shipping two units to California: one to the Presidio Trust, where it will be part of a competition. The Presidio Trust is the old US Air Force base in San Francisco. There will be lots of units going in there to whomever wins that competition.

We're talking to people around the world. We've signed a distribution agreement with NKK Corp in Japan, which also works with Siemens Westinghouse. We also have an agreement with Kinectrics. Siemens Westinghouse has an agreement with Kinectrics. So there is a whole network that's starting to develop. I think governments that represent citizens should be very aware of these developments, not only for the job opportunities—the job opportunities are part of why you'd want to keep us and companies like us resident in your province. If we're not providing these services to the citizens of Ontario, somebody from some other country is going to move in to do it. It's just going to sweep the globe in a very large way. I keep coming back to that cellphone experience.

The units right now are relatively expensive. They are prohibitively expensive for a homeowner or a subdivision developer. But the payback for somebody in a remote location where it costs you \$7 a litre to fly in diesel fuel—it becomes really attractive in that environment.

In the handout I gave you there is a slide that speaks to the payback periods. We do look at the scenarios. If diesel oil is costing you US\$2 a litre, the payback on a \$10,000 unit, which would make it \$2,000 per kilowatt,

would be one year. So this becomes very attractive down the line.

## 1210

Right now, we're going to put a plant up beside our R&D facility, and that plant will be our first production plant. We call it plant number 39. Everybody says it's their first plant. Ours is plant number 39. Out of there we will manufacture our first ride up that S-curve, because we see it going out quite gradually and then just doing the vertical, up and over.

What we would like to see—let me back up a bit. We are members of Fuel Cells Canada. We're also members of the United States Fuel Cell Council. We were members of that first. Again, this cross-border network is developing, and I don't mean just Canada-US, I mean around the world.

It's very difficult to keep up with all the developments, but the stationary power, the distributed generation, is going to be first off the block. I think I have to agree with the head of Toyota that the car thing isn't going to happen until 2020 anyway. The reason distributed gen, and especially solid oxide fuel cells are going to go first, in our opinion, is because of their ruggedness, their simplicity.

A PEM system needs a water management system, it needs a complex fuel-reforming system and it needs a pressure system. Ours doesn't need any of that. You feed this thing natural gas right out of an infrastructure that already exists. It's self-reforming. The water forms on the proper side of the cell. This isn't a science class. If anybody is interested, I could give an hour lecture on the difference between PEMs and SOFCs.

Ours loves carbon monoxide. Carbon monoxide will kill a PEM cell. Ours can tolerate some sulphur; a PEM cannot. Ours doesn't need platinum and palladium to be manufactured; a PEM does. We use nickel, and I think we have a bit of that in this province.

It's simple, and it has the potential to be a lot less expensive. It will use an infrastructure that already exists. However, it uses that infrastructure in a very efficient manner, which is pivotal to your mission. We are looking at numbers of 94% efficiency. We get 47% efficiency on the electrical, and in some of our modelling we get 48% efficiency on the thermal. We're pushing that right up to the top. So this becomes extremely attractive. This five-kilowatt unit will provide the electricity, heat and hot water to your average 2,000-square-foot home down to a temperature of minus 20 degrees.

When the product price comes down to US\$1,000, which would be approximately C\$7,500 in today's prices, this unit will become very attractive for retrofitting and to anybody putting up a new house. We see that happening somewhere around 2007. I don't want to start making predictions we can't keep to, but between 2007 and 2011 this is going to happen.

One of the reasons it's going to be driven, too, is that we are part of a Department of Energy grant. Siemens Westinghouse asked us to be on their team. The DOE in the States has a SECA program, and we are receiving

funds from that program. The mission for that program—the goal—is to bring the cost per kilowatt for a solid oxide fuel cell stationary unit down to \$400 a kilowatt by 2011. That's amazing, starting where we are now and watching where they're expecting that technology to go and that they're going to put the money behind it to make it happen. It's a very exciting industry to be part of.

From the Ontario government, we've had our MPP, John Gerretsen, come to visit and he brought Dalton McGuinty. I think that's about all the attraction we've had with the Ontario government. Peter Milliken, who's our MP, is a strong supporter and has been out to visit a number of times. We're just down the road, two hours on the train. It's a great ride. We would certainly be more than happy to have you come visit us and see what we're up to and find out more about how these things work.

Our mock-up right now is down in Tucson. This is the first time it's gone out of the province. We brought it here for our annual general meeting at the TSE Conference Centre last May. Border States Electric has requested that they be able to display it at their booth at the conference in Tucson this week. So lots of exciting things are happening.

In summary, what I'd like to say is that the technology we're working on does not ask for an infrastructure that is hydrogen. In your report, you've talked about fuel cells and hydrogen. There's more to fuel cells than hydrogen. We don't need a hydrogen infrastructure to make these things work. We have research programs going on at RMC, Queen's, McMaster and Waterloo. We support those projects. We put funding into these because we want our company to have new products, cheaper products, better products and we want to make this stuff so that we can take it and build a really viable company. We have enthusiastic people at RMC who are working on a prereformer for this unit so that you'll be able to fuel it with furnace oil and diesel and then you get that efficiency back out of this.

Speaking of fuels, I also want to note that in your report you talk a lot about the biogas. The installation in Stockholm is an urban renewal project with the potential for sales of 8,000 of these units. The two units that are going over there in July for the demo stage of this program will run off biogas off the sewage treatment plant that's been built in this urban renewal enterprise. I could give you the Web site address for that. I hope I don't misspell it, but I can certainly confirm it. It's [www.hammarbystodastockholm.se](http://www.hammarbystodastockholm.se). I think it's Swedish for "city." Anyway, I will confirm that address.

But it's quite exciting to go and get aerial views of this whole thing. The sewage treatment plant will produce the biogas that will run the solid oxide fuel cells that will provide the electricity and heat to these new homes. It's an environmentally neutral installation. Now we just have to work really hard over the next five months to make the first showcase for this product to be an exceptional success.

We look forward to hearing the outcome of your current set of deliberations and how you want to work with industry in this province to make Ontario a key part

in the development of this industry, not only in Canada but around the world. Thank you.

**The Chair:** Thank you very much for an interesting presentation. Just on a personal note, where would the factory or the plant that you're describing be located in Kingston?

**Ms Haines:** Right next door to where we are now. Just off the Sir John A. Macdonald exit.

**The Chair:** OK.

**Ms Haines:** We had a sod-turning in October. As a public company you have to be pretty circumspect in how you spend your shareholders' money. We had anticipated building in the fall and then determined that we had enough space in our existing building for the units that we'll be putting out in the second half of this year. So the building has to be ready for our production next year, all the systems ready to go.

**The Chair:** We're down to just about a minute or so, so maybe I'll turn to the Liberals for a question.

1220

**Mr Parsons:** I was pleased to hear that the next Premier of Ontario toured your plant. That will help.

**Ms Haines:** I won't get into a political discussion of this.

**Mr Parsons:** Twenty-some years ago, I bought a VCR for about \$1,100 and I bought an even better one at Christmas this year for \$97. That's the obstacle facing you.

**Ms Haines:** That's right.

**Mr Parsons:** Right now, a unit for five kilowatts would cost what?

**Ms Haines:** It depends on how much support goes with it and all those kinds of things. I wouldn't even venture. It depends on the terms. It could be \$50,000 to \$100,000.

**Mr Parsons:** What's the role of government? What's the role of Ontario to help you? It has savings and benefits for the general population to get your units on line. What's the role of government to help that?

**Ms Haines:** Support in demo projects. We are a business and, in the entrepreneurial spirit of business, we try to say that we're going to do this ourselves. Having financial support is always good, no matter what form it comes in. Grants to develop certain aspects, like the DOE grant—that's funding that says you can assign engineers to work on new product. So money is always good, money does help, and the government being aware and championing the cause as well, so that you are aware when you go to do things with installations up north, you know that you have options, that there is a technology out there that will answer the need for efficiency, conservation and environmental neutrality. One of the reasons I'm here is to educate. Another reason is to say that when you do decide on programs, we would certainly like to be part of it.

**The Chair:** Thank you very much for coming forward. Interesting technology. It's been quite exciting in this committee to hear about some of the various technologies as they're developing.



**Ms Haines:** If there are any questions on the colour handout, certainly, get in touch with me. There are assorted current press releases that talk to the fact that—

**The Chair:** And the Web site that you were making reference to, our clerk will make sure that we have the accurate number to put in Hansard.

**Ms Haines:** Yes. We have a Web site as well, and it's referenced. It's just fct.ca.

#### SHAN DHINGRA

**The Chair:** Our next presenter for this morning is Shan Dhingra. Please come forward at this time. Thank you very much for offering to present to the committee. As an individual, there's 10 minutes set aside for you. What you don't use in presentation will be divided between the caucuses for question purposes. For Hansard, please state your name as you begin.

**Mr Shan Dhingra:** My name is Shan Dhingra. I'm a retiree living in North York. Canada has been my home since 1966.

I feel proud today to share my excitement about the alternate, or shall I say, complementary sources of energy. Ontario generates 24% of its electricity by burning coal, contributing to greenhouse gas emissions the equivalent of 27 megatonnes of carbon dioxide, which is second only to Alberta at 47 megatonnes. Quebec's emissions in this context stand, remarkably, at zero.

The scale tips toward nuclear sources, which already supply 41.7% of Ontario's electricity with no such emissions. They are getting more efficient by the day, except for the accumulated nuclear waste. We have to safely guard this waste for 800 years, or until we find a solution to appease this growing monster. Nuclear and coal sources could be bypassed by wind and solar power. Gaspé in Quebec and Pincher Creek in Alberta are reaping the wind.

What I'd like to share with you today is my rationale for decentralization. In the wake of 9-11, safety, security and protection of what we have is imperative. This gets a more pronounced entry into the equation of energy, environment and economy. I'd like to draw your attention to this resolve. As a society we have come to enshrine this in our thinking and communal behaviour. It is paramount to protect and guard whatever sources of energy we employ. Whether we build dams, erect wind-mill farms or stay with nuclear temples, we are sitting ducks for the terrorists and their sabotage activities. For a committed saboteur, would it make any difference if the target were to shift from the World Trade Centre to a hydro power dam or a nuclear power plant? Decentralization should be the order of the day so that we are not incapacitated instantly.

We should not just be catching up with other jurisdictions like California. Rather, we should be innovative and lead the pack. Germany is a good example for us to look at. Its nuclear power, at 31% of its total generation of electricity, with 19 reactors, is being phased out within 20 years—a very sensible and proactive move by

Germany that we may follow. But wait until Canada shares our vision with the rest of the world. They'll be looking up to us for our innovative approach to energy renascence with due consideration for security.

What is that innovative approach? It is the fundamental shift from large-scale, centralized power generation plants to a cottage industry or to work at the grassroots level. I invite you to travel with my idea a little further. Let every household generate green power equivalent to at least one day's worth of consumption per week and one day's worth by employing conservation and efficiency measures. This formula is no different than encouraging people to grow their own produce for one day's worth of consumption and/or fast once a week.

Are the people ready to embark on generating green power for their own use? You bet they are. There are those 10% to 15% eager beavers and there are 10% to 15% at the other end of the scale who will never do it even when you put money in their pocket. It's the middle 70% to 80% of well-meaning folks who are now willing to listen and act their part when there is proper guidance, encouragement, incentive and help. Recycling is an excellent example—the blue box, the green box etc. They accept it and are proudly asking, "What next?" We need to empower Ontarians. A rewarding public program and education by the province will attain this.

How does John Q. Public generate green power, you may ask, in urban and rural areas? In my considered opinion, each household should be encouraged to accommodate a solar panel or two and have one to four mini-windmills the size of an ordinary table fan on the roof and a fuel cell in the garage. After all, a TV antenna on the roof of the house is not that antique. We're used to it. Going on the grid seems feasible in certain areas.

What incentives should Ontario consider? There are federal programs for retrofitting high-rise residential and commercial buildings. I recommend that Ontario work in concert with those national programs, capitalize on them and negotiate extending them to individual homes in addition to high-rise properties. In exchange for conservation measures and investing three years' worth of about 25% savings in power bills, a householder may be awarded, say, an equal amount from public funding for retrofitting—a win-win situation.

What about high-rises and MUSH? The high-rise green retrofit is progressing. One might even envision most south walls covered with solar panels, with a battery of windmills, table-size again, on the roof and a fuel cell in the basement. Corporations would then readily commission artists to come up with mural designs during retrofit, and the urban landscape would change. MUSH properties would strive to be self-supporting energy-wise.

#### 1230

Does this sound like a lofty goal? Not really. I've been volunteering on developing a context plan of Oriole village between the Leslie and Bessarian subway stations in Toronto. There is a school and community centre building, and I'm proposing that this building be self-

supporting energy-wise. To support my idea, I went to the Kortright Centre, Toronto and Region Conservation Authority. There are displays of various windmills and solar panels and one independent structure that is self-supporting energy-wise.

Can we try it on the highway? I'd like to recommend a variation of the above idea: a solar panel or two, plus two to four mini-windmills, again the size of table fans, incorporated along the highways in an urban setting per individual length of noise barrier. The top panel of the barrier could be a solar panel, and the posts could carry the mini-windmills. The 100-foot-high light standards could carry both of these at the top. The Ministry of Transportation already uses solar panels for electronic announcement and caution signs on the 401.

What do you do when there is no breeze or no sun? That is what my wife asked me, and this is my show-and-tell time. As a kid, I had a great time spinning the windmill. It was wonderful when there was a breeze. In the absence of a breeze, I didn't despair, because I soon found out that the windmill spins if I move the apparatus. The discovery gave me the way to have fun every time I wanted to see the spinning windmill in the absence of a breeze. I visualize a cylindrical frame with, say, eight vertical bars with a sleeve at the top and bottom, rotating at 15 kilometres per hour, primed with external energy. The bars carry a battery of windmills, spinning regardless of wind. Usually we find that solar and wind energy complement each other. In the absence of both, rely on fuel cells. Besides, we are still aiming for energy for one day's work per week and to be on the grid.

In conclusion: (1) I have shared with you my rationale for decentralization in the wake of 9-11 and empowering Ontarians to participate and be part of the energy solution; (2) I've recommended consideration of incorporating the use of solar panels and mini-windmills on the

noise barriers and light standards on Ontario highways; (3) I recommend exploring the smaller MUSH properties being self-sufficient energy-wise; (4) I recommend the marriage of art and technology in retrofitting south walls of high-rise buildings with solar panels and murals; (5) I'm a proponent of mini-windmills, solar panels and fuel cells in buildings of all sizes. However, I keep an open mind to other sources of energy; (6) I shared my exploration of moving the apparatus to gain speed, which in turn may generate wind to propel mini-windmills; (7) I propose that an energy secretariat be set up to act as a central clearinghouse for information and guidance; (8) I'm willing to offer to participate in any related think-tank, task force, work group, what have you.

**The Chair:** Thank you very much for an interesting presentation. We're hearing a lot of the thoughts you have in your conclusions and getting a consistent pattern. Your comments on decentralizing power sources are certainly interesting. Unfortunately, the time has run out. The 10 minutes are over, but we appreciate you coming forward.

**Mr O'Toole:** I'd just like to follow up on the previous presenter, Fuel Cell Technologies. If we are looking at things within close travel, I would like to recommend that we put that on the list.

**The Chair:** Actually our clerk was one jump ahead of you, but I appreciate your input.

**Mr O'Toole:** Great staff we have.

**The Chair:** We'll be looking at that list tomorrow and hopefully making some decisions on other sites to visit in Ontario.

The select committee on alternative fuel sources now stands adjourned until tomorrow morning at 8 am, Erie Room, Windsor Hilton.

*The committee adjourned at 1236.*











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## Assemblée législative de l'Ontario

Deuxième intersession, 37<sup>e</sup> législature

# Official Report of Debates (Hansard)

Wednesday 17 April 2002

# Journal des débats (Hansard)

Mercredi 17 avril 2002

Select committee on  
alternative fuel sources

Comité spécial des sources  
de carburants de remplacement

MAY 13 2002

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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Wednesday 17 April 2002

Mercredi 17 avril 2002

*The committee met at 1019 in committee room 1, following a closed session.*

## SUBCOMMITTEE REPORT

*Failure of sound system.*

**Mr John O'Toole (Durham):** —not just propane and other fuelled vehicles but more inventive fuelled vehicles, which we do today. I just throw it out. I would prefer if Jerry or the clerk, someone in the committee, would do the communications, and if it doesn't work out, that's fine with me. I've been there and so I'm not unfamiliar with it.

**The Chair (Mr Doug Galt):** I appreciate your comments. I think to encourage caucus members to attend is the responsibility of the subcommittee, not of staff, to get people out who are politicians. Anyway, we'll leave that with you and we'll continue with the visit on the 24th with as many people as we can get to come out.

So now we need adoption of the report. Those in favour of the subcommittee report? I declare that motion carried.

## REPORTS ON CONFERENCES

**The Chair:** Now we move into reports from committee members who have been to special meetings. Who's leading off? Dr Bountrogianni, do you want to do it right from there?

**Mrs Marie Bountrogianni (Hamilton Mountain):** I'll start, sure. I guess you don't have copies of this, because I sent them out earlier. I apologize. I'll start. Can we get copies while I'm talking? It's a short presentation.

**The Chair:** Does somebody else have copies of their presentation?

**Mr Steve Gilchrist (Scarborough East):** I do.

**Mrs Bountrogianni:** Do you want to start, then, Steve?

**Mr Gilchrist:** Sure. I'm glad you summoned Hansard back so I could put on the record that I stayed here all last night finalizing this and trying to rectify the technical pillage that has gone and lost one of my three reports somewhere when they changed computers back in January. My already logged European trip is somewhere, and I had no staff member to direct me to, hopefully, a CD somewhere. So I will give that one in a more

abbreviated form than the other ones. I'll get Tonia to circulate these—if you would be so kind. There are three.

The first one I'd like to deal with is part of our visit to California. Members may remember that you took a different routing back and I had an opportunity to visit the California Fuel Cell Partnership. I've put a short briefing note there. This is the information I picked up. I'll give it to Jerry. I would commend the video to all the members. It is a very good presentation done in layman's terms that lays out not only the potential for hydrogen as a fuel but debunks a lot of the myths that are circulated from time to time as criticisms of hydrogen as a potential technology.

Basically, what it is: just about every car company in the world that has an interest in fuel cell development has joined together in a partnership, along with fuel companies, fuelling equipment companies and the California Air Resources Board and some other state and federal agencies. They've created a one-stop shop. It's a 55,000-square-foot facility. It has about 16 vehicles from different manufacturers in place right now. Their goal is to have 60 by 2003, and then growing beyond that when it evolves to its next stage. They also have other fuelling stations throughout the state. That allows them to take these cars down to San Francisco, for example, or down to southern California and still have a place to refuel them.

I think it lends itself to what we're doing in terms of the sort of demonstration site that would be most appropriate if the government adopts recommendations to explore alternative fuels and create consumer and business incentives. I think, particularly when you come to hydrogen and to fuel cells, you need a place where school kids and adults can come and actually see the cars, see the engines up close and see the fuelling equipment, because it's really quite fascinating.

So that's the California Fuel Cell Partnership, and all the information has now gone to Jerry.

The next report is on the Rio 02 World Climate and Energy Event, quite a comprehensive conference. If I had to say there was one focus, it would be solar, which would be appropriate, considering that Brazil is a very sunny place. As you'll see in the first few pages from the listing of the different sessions, it went beyond solar. There was also considerable time spent on wind and biomass. Where I found a lot of issues that were probably quite applicable here to Ontario was in their consideration of their rural and remote areas.

**1030**

There are 20 million people in Brazil not connected to electricity at all, and they never have been. That has forced them to develop some innovative approaches, perhaps not unlike the challenges we face in northern Ontario, whether it's the native reserves or some of the very remote communities like Attawapiskat, Fort Albany, Moosonee and Moose Factory.

Because they're challenged not only with the number of people, the sheer volume they have to serve, but with the relative poverty of the country generally and those specific individuals particularly, they have come up with very tightly constructed one-piece-serves-all technology. They have designed, for example, a heating unit that has a solar cell mounted on what would look like a couch or a recliner of some kind. At the same time the solar cell is able to generate electricity, all the rest of the energy that's normally lost to heat is going to heat a water tank contained inside this apparatus. So they get both hot water and electricity from one unit that costs \$550 and is capable of supplying the needs for a typical family.

They have also recently developed, in concert with the state agency for science and technology, a combination rechargeable battery pack and solar array that has, for the first time, given them the potential to have illumination not only throughout the house but outside the house. They have created an apparatus with six sockets into which rechargeable batteries fit. During the day, the solar panel charges the rechargeable batteries within each of these lamps. At night, you can take the lamp out of the socket and not only hang it up throughout the house but take it outside on the porch. If there are agricultural activities taking place outside, for the first time ever they are able to take something other than an open flame to illuminate their activities.

Not everything they've done will be appropriate to northern Ontario, but an awful lot of the inspiration is similarly motivated by very vast distances and the relatively sparse populations in each of the communities they're serving.

So I've detailed some of the notes. Now, at that conference—that is this pile here—there was a very good extracts book. My notes simply had to supplement details that are there. There is even further information coming on a CD: the verbatim transcripts of every one of the presentations. I've done a bibliography at the end, detailing what's in each of those documents that I've just handed in to the clerk.

Finally, the Globe 2002: the Globe is the largest biennial environment and energy conference held in North America. This was its seventh edition. It attracted representation from 65 different countries and literally hundreds of manufacturers. The largest convention centre in British Columbia was filled from one end to the other. This conference really does touch all the bases.

I think what was most exciting about this one was they had in place a number of practical applications for some of the theoretical stuff we have heard in this room from some of the presenters. For example, BC Hydro has made

a commitment to be a leading hydrogen producer and a hydrogen fuel cell promoter. They had an already-equipped hydrogen-powered Ford F150 truck in place, along with details of the fuelling station they've already built and their plans for a considerable expansion of that fleet very quickly. At the same time, just outside the building there were a variety of buses parked with all of the different alternative fuel technologies: hydrogen, natural gas etc.

There was a massive presence by the federal government at this conference. I'm pleased to say that there was also a very large presence by the Ontario government and by Ontario manufacturers. We had a considerable pavilion—and do every two years. But the federal presence was interesting because as I made the rounds—this is the information from that conference, sorted by type. Let me just highlight that in this pile here are various federal publications. I am struck by the degree of overlap between at least four different federal ministries, all of which are producing lovely-looking phone books listing all the various environmental programs and incentives and yet very little seems to have resulted nationwide in response to these programs. I can't say they should be faulted for not trying, but it would appear that there is a lack of coordination.

I would hope, as we move forward with our thoughts on the government response to our report, that we would want to be very focused in terms of which ministry should be delivering which program. If there are supposed to be consumer incentives or business incentives, I think we should offer our thoughts as to who is best capable of delivering those programs. Certainly we need to make sure, as we move into an area as technologically challenging as alternative fuels, that we make things as easy as possible for consumers and businesses to adapt and that we don't inadvertently create bureaucratic barriers at the same time as the technological barriers are being eliminated.

Another interesting presentation was by a coalition of all of the coal companies in Canada, both the producers and the users. They indicated that Alberta alone has enough known coal reserves to supply 100% of the energy needs of the United States for the next 140 years. They also believe that they will have perfected, by 2007, steam reformation, a gasification technology that would allow the use of coal in every respect in as clean an environment as any other alternative fuel. The Alberta government is making a major investment in the work of this coalition. They expect to have a prototype plant up and running within the next year. If my memory serves me correctly, the Alberta government has offered \$550 million toward proving that this technology will work. If it does, it may require at some point in the not too distant future another committee of this Legislature to re-examine some of the things that we're debating today, because I don't think there's any doubt in the presentations we've heard so far that today's use of coal is anything but clean and I think we have to be governed by the known technology that's out there.



However, I think it needs to be put on the record that they believe that the same way you can steam reform, or reform through other pressure techniques, methanol or any other liquid hydrocarbon, the same technology can be made to work on a solid hydrocarbon such as coal. If that comes to pass, then we may some day have a committee recommending we reopen our coal-burning plants. But I think we take that one with a grain of salt today.

1040

I think the other portions in there are self-explanatory.

I do want to touch on the visits in Europe as well. That is this pile here. That trip included a one-day conference in London put on by the International Solar Energy Society. It was certainly everything you wanted to know about solar power in 12 hours, whether you ever needed it or not, a soup-to-nuts presentation and quite technical in its focus as well. The handouts will assist Jerry if there are any gaps in our knowledge base when it comes to solar.

The next three days were at the largest hydrogen conference in Europe, the Hydrogen Expo in Hamburg. Every European company that's in the business of equipping cars, making the products themselves, making the fuelling technology or making the fuel itself was represented at that show; a major presence by companies, in particular from Germany, the United Kingdom and Italy, which seem to be the technological leaders in Europe right now.

The fact of the matter is you can buy a BMW 7-series hydrogen-powered car today. They don't have many of them, but they have them, and at the conference, as part of their presentations, BMW and Mercedes both indicated that by the model year 2004 they would be readily available.

I then visited the fuelling station at Munich airport that BMW operates to supply the fuel needs for its vehicles and I'm going to tell you, it's right out of Buck Rogers: no human intervention. It is all laser-sited, robot-controlled. It opens the fuelling port to the vehicle; a quick spray of air to make sure there's no moisture or anything else around the seal, to make sure it's clean. A probe is inserted; the hydrogen is fuelled in a matter of about three minutes if the tank was completely empty. The probe withdraws again, closes the fuel port, and off you go. A green traffic-signal-type light in front of you indicates you're free to go.

They are also using that fuelling station right now to supply a number of the buses and other equipment working at the airport in Munich. The Germans have identified airport equipment as one of their highest priorities to hydrogenize, if I can create that term, and they expect to fully convert Munich airport within the next two to three years. They are getting good buy-in from equipment manufacturers beyond the car and passenger bus configuration to include their fuel trucks and other specialty equipment.

The final stops were to the various manufacturers in Italy—Nuvera, which is Italy's largest fuel cell manu-

facturer—and visits to the largest utility in Italy. They presented some pretty interesting and bold plans for the expansion of hydrogen in that country. I was quite struck by the fact that Italy seems, as a matter of national policy, to have probably gone further than any other country in Europe. The Germans have made the most progress but the Italians have set the loftiest goals. Certainly the curve that they're following is a very aggressive, almost exponential one.

So I think we're facing some significant competition out there, and that was the whole point of those visits: to see where Ontario sits relative to the rest of the world, particularly the large manufacturing centres. We have to be very sensitive to the fact that this is not just an offensive exercise we're in; it's a defensive one as well. If we don't have the car plants making the alternative-fuelled vehicles, somebody else will. And if we don't make the solar panels and wind turbines, they will be made in some other jurisdiction and sold here. So I think the information gleaned at these trips will certainly help Jerry. It has absolutely helped me.

The other thing I would draw to your attention is that I have been so bold as to offer some recommendations arising from those visits. You'll find them in the Globe report. As well, to Jerry, the last two pages in the Globe report are questions that I think need further research. While I appreciate that we're getting close to the end of our mandate, we still have about six weeks, and hopefully you'll have a chance to digest some, if not all, of those questions. If you can get any answers, I would be most grateful. I'm sure the committee would benefit from those answers as well.

Unless there are any questions, those are my submissions, Mr Chair. Thank you for the opportunity to expand my knowledge. I hope it does assist the committee, and Jerry in particular.

**The Chair:** Thank you very much, Mr Gilchrist. Questions or comments on his report?

**Mrs Bountrogianni:** Excellent report. Obviously there is a considerable amount of overlap from our European trip, but a few differences as well. I will agree that although Italy is not quite as advanced as Germany in that area, it is growing exponentially. It's a major goal in Italy right now, and they're quite impressive. I'll talk a little more about that when my presentation comes up.

**Ms Marilyn Churley (Toronto-Danforth):** I actually do have a question when Mr Gilchrist is available.

**The Chair:** We'll get his attention in a second.

**Ms Churley:** I look forward to looking at some of these documents because, as you know, I did not go on that field trip. I just had a question—we'll be getting into the draft report later, but there's a section that I'll say in advance I'm going to object to, and always have, and that is including energy from waste as part of this study and report and recommendations that we're doing. I'm wondering if at any time at any of the conferences you attended energy from waste was part of a conference or trade show and if you have any information about that.

**Mr Gilchrist:** The answer is yes, a variety of technologies. At the conference in Rio there was a presentation by the state government outlining all the ways in which they produce energy today and their goals to find new sources. One of the top four ways they expect to generate energy in the future is through municipal solid waste incineration. They are already doing that near Fortaleza, up the coast about 500 miles north of Rio. That's the largest city that has it right now.

At the Globe conference there were no less than 12 to 15 different booths displaying different technologies, most of them related to gasification, and a variety of techniques: some under high pressure, some just in a closed chamber, some just through anaerobic digestion. There was one company, actually out of Hamilton, Ontario—they manufacture the products—that did deal with incineration as well.

So there was some exposure to that, and I would suggest that many of these technologies are shades of grey when you're talking about the disentanglement of a hydrogen atom from something else for the purpose of combining it into another fuel that is either burned downstream or burned directly. I would suggest to you very strongly that what I got, particularly at the Globe, talking to the various representatives from those companies, was that our concept of incineration dating back to the 1950s and 1960s, and the sort of incinerators that were built here in Toronto in particular, is completely out of fashion. The new technology is quite benign. There is one company in Vancouver that is manufacturing incinerators and selling them all around the world, including some here in Ontario, that have no stacks. There is no outlet; it is a completely closed system, and it's an incineration process that they're using.

So I wouldn't want to suggest to you that anyone around the world is looking at this as the solution for their energy needs, but I think many jurisdictions seem to have adopted this as one of the technologies they're looking at to supply some small portion of their energy.

1050

**Ms Churley:** I take it you don't have any documentation on that, because that wasn't something you were focusing on.

**Mr Gilchrist:** I believe I did pick up some at the Globe. More to the point, both conferences have promised the verbatim presentations in CD format. There will be some presentations in there that I would recommend you consider.

**Ms Churley:** OK. Thank you.

**The Chair:** Any other questions or comments? Mr Hastings, I think you had your hand up, didn't you?

**Mr John Hastings (Etobicoke North):** I think Mr Gilchrist raises a very good point, which I'll bring up in my report. I'd like the indulgence of the committee—are we going to be here this afternoon?

**The Chair:** Yes.

**Mr Hastings:** I'm hoping I'll have mine available by then. Right now it's under lock and key, it's so highly confidential. I've got a call in.

I think the question Steve raises, and it's in Marie's report as well and will come out in mine—and perhaps it's beyond the purview of our terms of reference—is how we get some of these things going. The hydrogen vehicle, for example: if we don't do it, somebody else will. We know the US, Australia, a good number of the EU countries and Japan are already manufacturing photovoltaics on a massive scale. We're not even in the ball game. So a question I'd like to leave is: do we need to have something in this final report asking these questions to be taken up by another group in terms of the implementation of these items? If we don't do the hydrogen car, somebody else will. How do we do that?

**The Chair:** Good question. I'm looking around the room. Do you want to comment?

**Mr Jerry Richmond:** Just a possible point for the committee's future consideration. One thing the committee could do—and other committees have done this in the past, so there is a precedent—is possibly include a section in the final report, a bullet-point list of issues for future consideration, where the committee could identify, say, a dozen key issues that it feels it couldn't address but that it feels merit attention down the road. In response to Mr Hastings, that's how I would suggest, from what past committees have done, we could address those types of things: issues for future consideration. We all know it's a vast topic.

**Ms Churley:** It's a good question, but I thought—and again when we get into discussing the draft report—that part of our mandate is to make recommendations as to how we can get some of these things going. We may not have all the answers, but one of the things we were doing was looking at implementation processes around the world: financial incentives, tax breaks and things like that. I think Mr Hastings is talking more about the technical aspects, even with the recommendation of certain tax breaks and implementation policies. I believe he was just referring to the basic nuts-and-bolts technologies of how you get this going. In that case I think he's right: we don't have that kind of data and information to fit into our recommendations.

**The Chair:** Other comments or questions on the report?

**Mr Gilchrist:** I certainly agree with Mr Hastings. Again, I might ask him to consider what I did in the Globe report in terms of the detailed recommendations. They're simply my observations, and I hope everyone else will reflect on them and their own observations in the site visits and the public hearings and offer different ideas, if that's appropriate, or endorsement for the suggestions I've made in there. But they certainly include implementation mechanisms and suggestions to specific ministries on actions that should be taken.

If that's what you were getting at, Mr Hastings, I think you'll find that the committee certainly has, as I understand it, the ability to make these recommendations. It then turns to the executive council to decide whether or not they want to implement them.

**The Chair:** If I can just make a couple of comments, as I flip through this, Mr Gilchrist, I'm overwhelmed



with the amount of work that you've put into this. That's one of the reasons I elected not to do some of the travel to some of these conferences because I realized how much work it would be to put together a package afterwards, and I just simply didn't have the time. But compliments to you for the detailed report that's in here.

I just happen to be on a page of recommendations for Management Board and SuperBuild, recommendations for MOE. It's extremely detailed, and I'm wondering, especially with the amount of work—and I haven't really been flipping through the others. This one is the executive summary on the Globe. It seems such a shame just to set these aside. I think we need to very seriously look at them. As I glance at them, of course there's a lot of similarities in what you have written, Jerry.

**Mr Richmond:** Totally independent.

**The Chair:** Totally independent, yes. Very similar in a lot of respects to what Mr Richmond has put in his report for us.

Does the committee want to give any direction, other than to have Mr Richmond read this and make sure it's totally incorporated into our draft report? I don't know how many others have glanced at this while Mr Gilchrist was reporting, but it is very extensive.

**Mrs Bountrogianni:** I would agree that the researcher, Jerry, should read it and take into account the recommendations, but as far as totally incorporating it, I think we're going to have a huge appendix or reference list to the final report. But there is a lot of overlap, and perhaps where there is overlap, that is what should be in the report, and then if there are more to be added from Mr Gilchrist's or any one of our reports, that could be discussed on one of the many, many dates we have set aside for report writing. But I would not agree to going through every report before that.

**The Chair:** Oh, no. I was simply acknowledging the extent of work that he must have carried out and if there were any specific ideas you people had on how to take advantage of the report. I think Mr Richmond would like to comment.

**Mr Richmond:** One other alternative, and I'll just throw this out. I'll certainly do my level best to digest as much as I can of your conference material, but another alternative, so that everything remains above-board and no one would feel that there's any favouritism: maybe a preferred approach would be that those of you who went to conferences, when we discuss my draft report, if you feel you want certain things made more specific, you bring them as discussion points before the whole committee, the committee debates them and then, if need be, there are motions. Then everything is above-board. Then no one can accuse me of favouring one or the other. So that's what I would suggest.

**Ms Churley:** In fact I was going to suggest something similar. Even though I haven't been on field trips, I certainly have some recommendations that I will be bringing forward. I think there are some good recommendations, from a quick glance, in Steve's report that should be included, and we'll probably all agree that

some of them should be reported. That's probably the best process. It would be useful, however, for the researchers to take a look and—

**Mr Richmond:** Oh, yes, we will.

**Ms Churley:** —of course the duplication, that's clear, but there may be some in here, especially in terms of Mr Hastings's questions around implementation. If there are some recommendations in anybody's report that we can all agree to that would help with the implementation, I would like to see them included. So I like that suggestion. I think it makes sense.

1100

**Mr Hastings:** I'd like to know to what extent one or two of the key recommendations from all the reports of members who have attended conferences could be put on the Web site with some kind of note that these are recommendations made by a specific member. The rationale for doing that is, as you know, that we've had some uninformed criticism about people attending these conferences. I think it's one way to show the work that members have put into the material and the seriousness with which they brought their attention, interest and motivation to their specific areas: in the case of Mr Gilchrist, hydrogen; solar for myself; and I think Dr Bountrogianni did wind and investment stuff.

I'm wondering to what extent we could take at least one or two items from each report as a flavour and put that on the Web site for people to view, even though they may not necessarily be in the final report. That would be my suggestion on how to let people know what we've been doing over the last number of months.

**The Chair:** Interesting thought. Of course, you could put that on your own Web site at any time. For the committee, there would have to be approval by the committee.

**Mr Hastings:** At some point, perhaps a subcommittee could look at that item and see whether we could do that over the next six weeks or so.

**The Chair:** Interesting thought, anyway. Other comments?

**Mr Gilchrist:** The only thing I would add to the discussion on the recommendations is that I certainly would never suggest they are a comprehensive list. I offer them only as reinforcement, where there is overlap with Mr Richmond, or inspiration for discussion around this table if it's something that was not dealt with. I have tried to give it a degree of specificity that hopefully would allow what we have learned in the course of our various hearings and visits to be transmitted in its entirety in a way that future readers of our final report won't suffer under any misconceptions and will recognize the tremendous potential.

If I wanted to underline any point, it would be that every single one of the things I have recommended in there is being done somewhere in the world today. There is no jurisdiction that is doing all those things; therefore, I think there is an incredible opportunity for Ontario to springboard beyond every other jurisdiction in the world by assimilating a more comprehensive package of in-

cervatives for business and consumers to move forward and adopt alternative fuel technologies. This is not pie in the sky. Every one of the various initiatives is being done in Europe or the United States or elsewhere in the world. I think that is a powerful part of the message we have to convey to the rest of the members and to anyone else reading this report: these are practical, economically justifiable and environmentally necessary decisions for us to be making.

**The Chair:** Further comments or questions?

**Mr Richmond:** John, in response to your point, I just offer this as an alternative: over the next six weeks, the members could certainly distill their experiences and major points from their conferences, and they could be mounted on the Web site. The only cautionary note is that once the committee winds down, the Web site will probably vanish into cyberspace somewhere. I'm not sold on this, but an additional point might be that if members want, they could distill their conference experiences in one or two pages and those could be appended as a written item to the main report. The only downside is that someone alluded to the fact that the committee caught some flak on its so-called junkets. I just pose that to you, to have a written summary that would be appended to the back of the report, as an option. That's for you, gentlemen and lady, to decide.

**Mr O'Toole:** I would like the word "junket" struck out.

**Mrs Bountrogianni:** I like that recommendation, but I feel I've already done that. I really distilled mine down, as you can see. It's not a comprehensive report; it's a summary of everything. I could distill it even more but, as you know, there are two filing cabinets full. I think I could maybe even rival Mr Gilchrist's contributions as far as the number of trees that I've killed in the process.

I think that this very short report was actually quite an accomplishment and I have to thank my then intern, Lyndsey Saunders, a great deal for helping me do that. I can try, but I don't know if I can get any more "summary" than this, except for specific recommendations, which I haven't done. I have summarized their recommendations within each summary, but I haven't specifically said what I think after all this. I've left that for the committee to discuss as a team, but I can certainly change my ways. I'll take that into consideration.

**Mr Richmond:** That's just another option.

**Mrs Bountrogianni:** Sure.

**The Chair:** Would you like to make any more comments about your report?

**Mrs Bountrogianni:** Oh, you don't want me to present it?

**The Chair:** Sure. I think we're moving on. We'll officially move to you for your report.

**Mrs Bountrogianni:** I hope you have in front of you now an executive summary of the conference papers for the Second Annual European Renewables 2001 Summit. I attended November 21 and 22. Attached to that, you will have references, which I did, by the way, send out in January or February, I believe, to everybody. The first set

of references are of the Brussels conference. The second set, even though it's dated December 12—that's probably when it was typed—is the European reference list from my visits in Brussels and Paris on November 23 and 24, not December. It was the same trip—I just want to put that on the record—even though the reference list has a December date on it.

I will go through some specific summaries of the conference very quickly and then talk about generalities, and then make one process recommendation that I think is important—whether it's in the report or not is up to the committee—from my experiences in Europe that week.

The summit was divided into financial institutions, governments, consultants and energy companies presenting. It was a very high-level, two-day conference—very comprehensive. There were some non-European companies as well, but mostly it was European companies. I happened to be there during the week that the European community had their initiative for energy and renewables, their dates and their targets, so it was a very exciting time to be there as well.

I'll start with the financial institutions. I think we can gain from Europe's experiences and Europe's mistakes. There were investors there from financial institutions who talked about how in the past investors saw the risk and what forms of energy they saw as risks as far as investing. That's important for us to know when we implement the financial implementations of the alternatives to fossil fuels.

One of the presenters gave risk levels, and had fuel cells holding the highest risk, followed by, in order of less and less risk, photovoltaics, microturbines and wind power. As we all know, wind power is big and very successful in Europe, so it's not unusual to have that order of risk. We also know from Mr Gilchrist's conference proceedings that fuel cells, although very new here, are not that new in Europe, but are still new, relatively speaking, compared to the other alternatives.

Another financial institution that presented was Melville Haggard of Impax Capital Corp Ltd, about the UK experience. This was interesting. This has also come up in our hearings about subsidizing power purchase agreements—the pros and cons. This particular company felt that market approaches were superior to subsidy approaches. I think we heard in some of the hearings here, too, that, in fact, if you are going to subsidize something, you either have to guarantee a fair number of years of that subsidy or you have to, as we heard out west, subsidize or give incentives to initiatives that you know are going to work. We heard that out West and we heard that in our hearings, so this is an overlap with Europe's experience.

1110

I then heard from a number of national governments and the European Union as a government itself. As I said, that week the directive on the promotion of electricity from renewable energy sources was passed in the European Union. The directive obliges the commission to make, if necessary, a proposal for a harmonized



community-wide support system within four years of 2001, with the operation of different national support subsystems, and with a transitional period of seven years. That's quite a few years. They've given themselves quite a few years. But I couldn't help but think, when Luc Werring was speaking and when other European countries gave their presentations, of the parallels between the European Union and the federal-provincial processes here. They have a bigger challenge, when you think of the massive cultural differences and the language differences, than we have in Canada, and yet they have been able, over the last couple of decades, to slowly but surely overcome these obstacles and come to a process whereby every country has to buy in, with a very flexible framework of time and implementation strategies and respecting each country's differences.

I couldn't help but think—and this is where my recommendation at the end will come in—that whatever we do, we also have to recommend to the federal government more communication and more provincial-federal initiatives. That's key. I guess we can extend that to our American neighbours as well. As I was listening to all the presentations, where there was conflict it was where one country was following the rules and another neighbouring country, which of course is half an hour away in some cases, was not. We have some similarities across the border. Then, of course, the issue of fairness came into play and the effect on the economy of the specific country that was following the rules versus those that weren't. We have some similarities between Canada and the US. But I think we have a long way to go in Canada as far as communicating with the provinces a coordinated approach to dealing with this. If anything, what I got out of this part of the conference was that there is a similarity with Canada, but if Europe can do it with all its differences, we sure should be able to do it in this country.

I listened to Mr Lemming from the Danish Ministry of Environment and Energy. Of course, we all know that Denmark is a leader in the field of wind energy. Accumulated capacity, private and public, has dramatically increased since 1986 with respect to wind energy. Energy 21 is Denmark's government energy policy and it sets targets for CO<sub>2</sub> emission reductions of 50% before 2030 and percentage targets for renewable energy of 20% by 2003. Again, they've given themselves a lot of time but they've given themselves a framework and targets. I think that in our recommendations we may want to consider being specific, but with specificity has to come flexibility, for obvious reasons.

Market incentives are crucial. The presentation concluded with a description of Denmark's offshore wind energies, an explanation of the tendering quota system and a discussion of future challenges of the large-scale integration of wind power. I have all of that. I've offered all of the resources I brought back in my suitcases to Navigant as well as to Jerry Richmond, and to the rest of the committee for that matter.

I heard from John Doddrell from the government of the UK's sustainable energy policy unit. Mr Hastings,

you'll find this interesting. He's from the Department of Trade and Industry. The government of the UK sees renewable energy as important to sustainability and security issues. Of course, this happened two months after September 11, so security issues were intertwined in most of the presentations. I don't know if that would have happened if the conference were this week—months afterwards—but definitely security came up often in November. The political role of government, according to this gentleman, was to help meet emission targets, stimulate the development of new technologies and provide diverse energy sources, as well as contribute to rural development.

I was at a meeting with my colleagues from Hamilton with farmers of the region last Friday and I told them about this committee, because they also talked about how farmers can get involved with renewables, with corn. In fact, they had all sorts of products there for us to look at that were made out of corn. So I told them that there indeed was an interest in this committee and I gave them the Web site. This was also discussed in Europe.

With regard to Kyoto, the UK will meet and exceed greenhouse gas emissions reduction targets by 12.5% by 2008 to 2012, and renewables currently represent under 3% of the UK electricity supply. I don't know if you heard that same number, but this is what I heard, Mr Gilchrist.

Now a renewables obligation requires all licensed electricity suppliers to supply specified proportions of electricity supplies from renewable sources, which perhaps would make a good recommendation, with compliance demonstrated by ROC, which is the renewable obligation certificate. But the UK government does support a market-based approach, leaving the choice of technology to the provider. So yes, have a target, have energy suppliers provide a percentage of non-renewables as part of their providing energy, but the consumer chooses. So there's that flexibility there.

Then I heard from a number of consultants who reiterated a lot and talked about the economic feasibility of new and renewable energy sources, but they do not on their own guarantee market enlargement. They actually talked about projects in Canada and the US in these presentations, so they're also looking to us.

I heard from a number of energy companies. Just as an interesting aside—this was about a week before the Enron disaster—of all the presentations, and I found them all very professional, very interesting, the one I detested was from the Enron people, which was interesting. I thought they were arrogant; they were very critical about everyone else's presentation and very abrasive. I sat back and I thought, "Hmm, this is interesting." So of course a week later Enron went under, or they had their difficulties, so I was thinking they knew something was up and they were taking it out on everyone else, or it was that kind of attitude that brought them down. But it was interesting.

**Ms Churley:** "Mr Badger of Enron": is that an actual name?

**Mrs Bountrogianni:** That's an actual name. I can tell you stories about Mr Badger. I'll tell you later, Marilyn.

I also heard from the Italian National Body for Electric Power, Bezzeccheri of Enel, which is the world's largest power producer dedicated exclusively to renewable energy. So as Mr Gilchrist said, Italy is not as far ahead as Germany, but they are bound and determined to be the leaders in this field. They have initiatives, they have funding and they have the public buying in as well. I think that's where we want to get to, actually. It would be nice if we could get there as a country and as a province.

Enron of course was there and presented its vision for green trade, but what Enron thought is a moot point right now. So I'll skip that.

P&T Technology, one of the largest wind farm developers in Germany, presented. I won't go over that because it's all here, except to say that the key success factors were competitiveness, profitable prices, regulation for feed-in and solutions for high inflation. So again, let the market dictate but with some control.

Pegrum of the United Utilities Service Delivery outlined key investment risks, resource/fuel supply, cost control, technology, procurement, and political and market risks. By the way, political and market risks came up in every single presentation, some more detailed than others.

Peter Webster of Inergy, which is a US-based propane marketing and distribution firm—I don't know if we heard from them here but I don't think so: "Most renewables require government support," according to this US company, "such as direct subsidies, special operating privileges, tax levy exceptions, and obligations on generators/distributors/suppliers, because the 'ethical' market is very small." He cited some research we also heard here in our hearings, that when you ask people in surveys if they want green energy, they will say yes; when you ask them, "Are you willing to have your taxes go up?" they will say, "Wait a minute." That was an American perspective.

So it's very different from the Europeans' perspective, who have gone through this and for different reasons have embraced green energy. They had to. They didn't have as much of the others.

The rest is basically repeating. There was a lot of overlap in the presentations.

Eurelectric's position is that renewables must be integrated into the market. It warns that feed-in tariffs are inextricably linked, subsidize and distort the market, prevent European synergies and do not provide improvement incentives. To simplify this, and this is important when you think of federal-provincial relationships, if one country gives incentives and the other doesn't, the country that does give incentives feels that's unfair, basically. How the consultants and the companies went around it is that they will go where the incentive is. If there's an incentive for production, they'll go there. If there's an incentive for distribution, they'll go there. It can be the same company in different countries, depend-

ing on where the incentives are. So that is how companies are getting around it, but the governments themselves within each country are saying, "We need something integrated," and that is what they're trying to do now.

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Brian Count of Innogy, the largest UK electricity supplier, believes that energy markets across Europe need to be liberalized faster to produce a more consistent climate for business, the framework for investment needs to be stable and the planning process must be supported by government and regulator but not overly burdened by processes and regulations. There must be regulation, but there must be flexibility, I guess.

Then Stephan Singer—who's actually quite famous—from the World Wildlife Fund. You might have heard—

**Ms Churley:** Yes.

**Mrs Bountrogianni:** He was actually the star there, and he gave an excellent presentation, which Enron just killed but he was very good at addressing Enron. He made a number of presentations: the removal of barriers, such as hidden and real subsidies for conventional fuels—you heard that here too—and tax breaks and/or European union-wide feed-in tariffs—again that consistency across Europe which we can maybe generalize to consistency across provinces—and the development of a solar belt for the OPEC nations of North Africa and the Middle East. That is another thing that came up over these presentations, and I didn't know how relevant it was. I didn't include it, but they are in the references. There are huge markets out there. You alluded to that, Mr Gilchrist. They are tapping into those markets now. I didn't include it but, for example, Spain and their wind power: they are distributing it all over, not only Europe but in parts of Africa as well and the Middle East. They went through what they went through and now they're grasping the opportunities financially.

Then I also had a meeting the next day, November 23, with OECD and IEA—I have all the references here, dated December 12 but indeed it was November 23 and 24, which I will submit to the researcher, to the clerk—basically talking about the good relationship Europe does have with Canada on these issues and the frustration over the last two decades in Europe but that they feel they're finally getting somewhere. They have an excellent relationship with Natural Resources Canada, which was good to hear. So perhaps that's a starting point for us too. Whatever recommendations we make federally, we may want to look at Natural Resources Canada, because if they're working well with Europe maybe they'll be motivated to work well with the provinces as well.

That's very summary of my four days in Europe, and I thank the committee for the opportunity. Because I had a different starting point than Mr Gilchrist, I probably learned a lot more about renewables, and it was very worthwhile. Also because I went fairly early, in November—well, my starting point was very minimal—it gave me a good background for asking questions during our hearings. It was excellent. So thank you, and I will submit a couple of suitcases full of books to you.



**The Chair:** You have a similar collection, do you? Thanks very much for the report. Questions or comments?

**Mr O'Toole:** I appreciate the report. I just wanted to point out a couple of things. I'm observing some contradictions, not that it's a critical thing. I'm sure that contradiction existed.

I looked with some interest at page 2, where it says under the Jorgen Lemming, Danish ministry presentation, "market incentives are critical." That's the middle of the second paragraph. When I look at the concluding paragraph, which is really from Stephan Singer, it's renewable policy needs or whatever, it says, "The presentation makes a number of recommendations including: the removal of barriers such as hidden and real subsidies." That's the dilemma we're faced with in a policy sense: the pricing issue, the real cost of energy, full-cost price, and we've talked about that. But one of the strongest emerging things is this whole renewable portfolio of standards, which really has to be the incentive in some way, and I probably agree that it should be. But what is your real conclusion, given that we're in a market that's changing to an open market, which I think is being fought at every step for the wrong reasons? It's about not moving on from where we are. Even Steve's report, his conference summary from the Globe, I think really makes the point you've made. He says none of the changes he observed, like in the Pennsylvania market, none of this opening of competition would have happened without competitive energy or a power system that's competitive: hydrogen, wind, photo. That's what is happening here. We and where we live, whether it's biomass or hydrogen or whatever, need the competition.

So I'm putting two questions to you. You saw the contradiction in Europe: many jurisdictions can or cannot incite into the grid. When it all opens up over there, they're going to be just like us in Canada, or with our northern partners. If we're incenting, it becomes a kind of free trade issue, technically. Do you believe we should open the market? That's my question to you. I'm asking it because I think it's a really important question: opening it to what?

**Mrs Bountrogianni:** I'll answer the first part of your question, about the European contradictions. There were indeed a whole range of opinions not so much on whether it should be an open market but on how much regulation should be there and how much incentive there should be, how much tax levy there should be. There wasn't anyone who said it shouldn't be an open market, because Europe is totally different than North America in that way; their history is different. They had to open the market 20 years ago. I remember visiting relatives over there, and we had to turn the lights off for two hours a day. That's how bad it was. It's not like that now, let me tell you.

I think our platform is fairly clear: we disagree with selling off Hydro One, but we see as an advantage the opening of the market for green energies with strong regulation. Especially given what this committee is

doing, we see it as an advantage. You asked me for my opinion. My opinion, in this case, coincides with my party's opinion; I don't know if George wants to add anything. I wasn't going to bring our policy up, but you asked me.

**Mr O'Toole:** If I may, without getting into debate, just complete that, I suspect they are two separate issues; that is, the opening of the market on the generation side so that we allow consumers product choice on their bill, "Do I want wind? Do I want solar?" so that we can change the demand load to different forms of energy—

**Mrs Bountrogianni:** As long as it's fair competition, Mr O'Toole.

**Mr O'Toole:** Oh, yes, that's where it comes to pricing.

**Mrs Bountrogianni:** Chair, he asked me. I wasn't going to bring our policy up. This is another committee. But Mr O'Toole asked me, and I don't mind answering: as long as renewables can fairly compete with non-renewables; otherwise, we don't agree.

**Mr Hastings:** Dr Bountrogianni, to what extent do you think the commitment by the EU, or the stronger partners in the EU, in whether they've adopted Kyoto, came out in the conversation? Did you get any impression that the Europeans are using the Kyoto agreement supposedly as an environmental guise, which is fine, but also as a strong economic weapon to beat the hell out of us in North America? Given that I see that the reactions of the environment ministers and the EU environment commissioner were very vigorously negative about Canada trying to use clean-air credits, ie the application of natural gas, as one of the ways to help us get through Kyoto, yet they're demanding that we ratify this thing without the United States. I don't get the impression that they have much appreciation or understanding, or the willingness, to see that we would need that kind of assistance if we're going to go against the Americans, who aren't going to ratify Kyoto. How many other European countries have actually ratified it? Has the UK ratified it or simply got at the work of reducing greenhouse emissions?

**Mrs Bountrogianni:** Actually the only time Kyoto even came up at the conference was to criticize George Bush. Canada never came up with respect to Kyoto. I didn't go there to discuss Kyoto, so I didn't bring it up. I don't have an answer to your question.

1130

**Mr Hastings:** Do you think they're using their aggressive environmental position as an effective weapon on the economic front in terms of all these renewables?

**Mrs Bountrogianni:** Definitely.

**Mr Hastings:** Right now we are going to end up being a basket case, importing this stuff and selling it into the Canadian market, if we don't change that mindset.

**Mrs Bountrogianni:** They are definitely taking advantage of the economic possibilities of renewables. They see it, and that's what this conference was all about: seeing it. But we had a whole range of presentations with respect to how strong regulations should be, whether

there should be subsidies or not, what the experiences have been where there are subsidies in one country and not in another, and so forth.

**Mr Hastings:** On the financial side, did you come across any financial services people who see the vast opportunity in the trading emissions field, with CO<sub>2</sub> and NO<sub>x</sub> and VOCs, and how you could use that to set up a model you could sell to the rest of the world on greenhouse and other types of toxic emissions?

**Mrs Bountrogianni:** Yes. In fact, and I can get this for you, look at the reference list, Peter Webster's paper—green energy trading, synergy, global trading.

Definitely they see this opportunity. I go there for family two or three times a year. It's pervasive in their lives. It's something they've bought into because they've had to buy into it, and they've embraced it a lot more than we have in North America. That part I knew even before this trip, but the details were very interesting.

**Ms Churley:** Thank you for your report. I have a question on what you said last, and perhaps both of you may not know this: what kind of conditions existed or exist in Italy, for instance? Why have they taken on such a leadership role in this? Is it partly environmental or economic? What is it?

Also, it's too bad Mr O'Toole had to leave the room, because he raised a very important question around the deregulated market. Of course, I beg to differ. The position of my party, the NDP, is different from the Liberals and Tories on the generation part. One of the things the environmental community in Ontario and some of the research I did—we have to take into account that we are talking about all this and putting out a report in the context of, and sort of under the cloud of, the privatization and deregulation of both Hydro One and generation in this province without really knowing what the rules are going to be. We haven't really looked at the impact and implications of that overall as to the rules that now exist and how it's going to impact and affect government's ability to do some of the things, tax-wise, incentive-wise etc, to bring in some of these new alternatives.

Second, there are questions around the coal-fired plants here, which don't operate at full capacity except in peak times, and the alarming fact that a private company is going to run those seven days a week, 24 hours a day, to sell power to the US.

Those are the kinds of things that, no matter what side of the equation you're on, I think we would all agree we have been discussing and coming up with recommendations pretty much devoid of the criteria around the new reality in Ontario, unless the NDP can stop it, of course, which is something we'll continue to work on. But I find that to be a problem. That's a statement and a long question.

**Mrs Bountrogianni:** I'll answer your question—the statement is on record. The question is about Italy and why. I think it is a combination of need, the environment, an energy shortage, as well as being attuned to the financial contribution that renewables can make. I think

it's a combination. They have gone through decades where they've had to conserve energy and, much earlier than us—I guess one could argue we're a little late in finding out we should be looking at this—they had to. Basically, they had to.

With respect to your latter statements, I think this is a golden opportunity for this committee to make recommendations within the new reality. For example, some of the recommendations here or some of the initiatives in Europe were for energy providers to guarantee a certain percentage of their energy to be renewables. That could be something that we can take advantage of, whether we agree with it or not, with what is happening May 1.

If I see anything positive around May 1, it is the fact that renewables may have a stronger voice, but we have to be vigilant about that. Otherwise, I agree, it'll be a disaster.

**The Chair:** Further questions or comments?

**Mr Gilchrist:** I'd just like to add to Ms Bountrogianni's response to that question that there are some other dynamics taking place in Europe. There is some history, and the inspiration probably was originally the relative shortage of energy, for cogeneration facilities. Instead of the very inefficient way that we heat water, they use systems that, in the heating of the water, use the air to then heat the house. Some of the systems that are on the market right now are about 80% efficient.

One of the Italian companies, Nuvera, is very actively developing not just transportation but residential fuel cells to take the cogeneration-type systems one step further. They see this as a market that is already softened because people take as a matter of faith that that's what you do in your house; there's already a combination between various energy needs. To go one step further and now have a fuel cell that also generates the electricity at the same time as it's generating heat and heating your water, all of those things, is a fairly small step, as they see it. That's probably where their biggest market will be in the short term. In the longer term they talk about transportation issues.

It really is remarkable, the extent to which North America has developed systems like water heaters that are so inefficient and a stark contrast to what countries in Europe have been doing for decades. So I think they had a head start on us because of these almost cultural expectations that they had to get more out of their energy than we did.

By the way, I just wanted to mention that the clerk has distributed a selection of articles that I'd accumulated in the last few weeks. I don't know if anyone found them interesting. I also have two letters that I received from the company that didn't manage to appear in Vancouver, the company that had a diesel additive and a technology to take sulphur out of coal—it's another form of clean coal technology—and I offer those for your consideration as well.

**The Chair:** Further comments or questions on Dr Bountrogianni's report?



**Mr Hastings:** I hope, Mr Chairman, that it's noted when we go through the final draft about Dr Bountrogianni's reference to the Danish ministry of the environment and the wind potential that we are losing here. I just saw recently that regrettably Prince Edward county decided not to have Vision Quest develop any kind of wind potential in Lennox or Prince Edward counties in eastern Ontario because of siting problems, the so-called avionics. It's something this lady who was here during the last round of presentations mentioned; to me, a bit of a bizarre conflict between the conservation environmentalist and the energy environmentalist entrepreneur. I hope we come to grapple with that very clearly, given the experience—I think it was Prince Edward county that rejected the potential of wind energy, for whatever set of reasons there—how we put ourselves behind the eight ball again with these two items, when you look at the Danish experience, the Alberta and BC experience, California to a lesser extent, something I hope we reference and bore into when we get to that part of the report.

1140

**The Chair:** Did you want to respond to that, Dr Bountrogianni? I would like to make a couple of comments as a follow-up.

**Mrs Bountrogianni:** No, that's fine. I appreciate the comments.

**The Chair:** It's close to my riding and where I live, near the village of Hillier. I think the comments and the concerns had to do with emotion, not having seen a wind farm. They were talking about the sound. They were talking about all the birds it would kill. They were talking about how terrible it would look. Just as I passed the pictures around that Mr Gilchrist has taken, I would be proud to have a wind farm behind my house or in front of it or wherever. I think it would be absolutely intriguing to have something in my community. But there was just no give or take with the group there, and the council involved with planning bowed, or agreed with or whatever, and did not proceed. I think they may take it to the OMB and move through that, but I found it very disappointing. They seemed to want to beat up on some committee members. Whether they did or didn't recommend it or did or didn't see it seemed to become a big focal point. I think that was very unfortunate. And maybe the company from Pincher Creek was trying to take advantage of the fact that we were there, in all fairness. I'm not sure. It was just unfortunate that we don't have a place in Ontario where—apparently that's some of the best wind in southern Ontario. Take this in the proper way, but maybe if we had a few on the Toronto waterfront it might make it more appetizing to rural Ontario: "Hey, they don't mind it in downtown Toronto. Why are you complaining out here?" Certainly as I drive east and look south to the Pickering station, I think that's rather attractive to see that windmill turning in the air—my comment as Chair.

**Ms Churley:** It's a good point. We had that sharp contrast between, as you put it, the conservationists and

some of the environmentalists. Toronto Hydro put an experimental wind turbine, windmill, in the Ashbridges Bay area and we ran into the same problem. There was a split and there was quite a fuss in the community over it. Frances Lankin was then the MPP for that area and that was one of the few times when we worked co-operatively with the present government and wrote a letter urging that this go ahead, that there not be long, drawn-out EA processes. At the end of the day we had some constituents quite concerned and angry. But I suppose that's going to be the challenge for us, having to make at some point some kind of—I don't know what the OMB is going to decide, but at some point we are going to have to take a stand and not let communities hold us back in this area. I don't know what the recommendations will be on how we go about that, because it is at this stage a municipal issue. So it's something that we are going to have to grapple with. I think on the whole people are going to oppose it because it's new.

**The Chair:** One of the problems we deal with in rural Ontario when something like this comes up—it's new, it's a change—"Oh yeah, Toronto solutions laid on rural Ontario." That's what I have to deal with as a rural politician. That was the reason for my comment over here. I really wasn't trying to be nasty; it's just what I struggle with on a daily basis.

**Mr Gilchrist:** I would just offer for your consideration—and I guess this is one thing, apropos to an earlier comment, suggestions that hadn't made it into the draft report. You'll find under the heading "Recommendations for MMAH" a suggestion that the Planning Act be revised by July 1 of this year to apply a provincial standard for zoning for wind farms and photovoltaic systems immune to municipal alteration, to define as any other agricultural use is defined wind farms or solar arrays.

I think that would take away the NIMBYism and the somewhat parochial attitudes you're talking about, Ms Churley, that afflicted the application at Ashbridges Bay. Of course, we were pleased to co-operate, as we always are, when you made your entreaties for rapid consideration. But I think it's no less valid out in Prince Edward county than it was in Ashbridges Bay.

It is sad: the edge of the Great Lakes and the edge of Hudson Bay and James Bay have the highest wind loading in Ontario. So to have found a site like that and to have seen, as Dr Galt has described, a number of criticisms based on mistruths, misinformation and uttered by people who admit they've never seen a wind turbine was disconcerting.

I too have a farm not far from that site and I know how windy it is there. I think it's quite distressing that here we have such a minor bureaucratic barrier to the adoption of a green technology. That's why I've suggested in that list of recommendations that if you don't like the timetable, which is an aggressive one—by this summer—then I think those are the sorts of responses I hoped my recommendations would elicit from you. But if you do agree, then I'd like to see something like that in

our final report as one of the action items that we call on the various ministries to commit to, to make sure we never again see a Prince Edward county or an Ashbridges Bay type of situation.

**The Chair:** Thanks very much, Mr Gilchrist. Other comments?

**Mr Hastings:** I think it's really instructive, from our reports and discussion thus far that should find their way somewhere into the final report. Something along the lines of lessons to be learned or the whole issue, as I come to think more about this, is that here we're sort of pioneers or early adopters. We want to see this stuff get implemented, and yet you get dismayed at seeing how little items, misinformation, can put the whole thing aside. I think we need to have something in the report about the mindset of blocking and resisting these proposals for alternative fuels, whatever source you use. You can bring these things up in their own context to block anything. I think we've got to have a massive educational awareness program here about this kind of stuff.

**The Chair:** Interesting. OK, thank you.

I guess we're still on comments on Dr Bountrogianni's report. We got off into a bit of discussion here. We'll wind up or go till 12 o'clock and then we'll have Mr Hastings after lunch. Any other comments on Dr Bountrogianni's report? Again, thank you very much. In spite of it being condensed down, it's quite extensive.

I was wanting to check with you: you had a list of priority risks. Do you have those handy? I just want to jot them down. I didn't jot them down when you stated them.

**Mrs Bountrogianni:** Fuel cells hold the highest risk—this is from Europe's experience—photovoltaics is next, microturbines and wind power, in that order.

**Ms Churley:** The greatest what?

**Mrs Bountrogianni:** The greatest risk in investment.

**The Chair:** Microturbines referring to hydraulics?

**Mrs Bountrogianni:** Yes, and wind power.

**The Chair:** Or is that gas turbine?

**Mrs Bountrogianni:** I thought it was—

**The Chair:** Hydraulic?

**Mrs Bountrogianni:** I thought it was. Because it's Europe, so it would be hydraulic, wouldn't it? I'll look at the paper.

**The Chair:** Probably gas turbines would be higher than that.

**Mrs Bountrogianni:** You know what? I did this in November. I don't remember.

**The Chair:** Fuel cells, photovoltaics, microturbines and wind.

**Mrs Bountrogianni:** I can check that.

**The Chair:** So probably a gas turbine would be higher than a fuel cell. I would think so. That makes sense.

Other comments? We've wound up? Enough discussion on Dr Bountrogianni's report? Thanks very much. The committee stands recessed until 1 o'clock, at which time we'll receive Mr Hastings's report and then, once we wind up with that, we'll move in camera and discuss the writing of the final report.

*The committee recessed from 1150 to 1304.*

**The Chair:** I call to order the select committee on alternative fuels. We look forward to Mr Hastings's presentation.

**Mr Hastings:** I'm sorry to disappoint you, Mr Chairman. I don't have the stuff, so I guess we can move expeditiously on to the final draft. I would ask the committee's indulgence to do it first thing tomorrow morning. Is that fair and square?

**The Chair:** Tomorrow morning at 10? OK.

**Mr O'Toole:** He's not up to the job.

**The Chair:** Our apologies to Hansard for asking them to come back this afternoon, but I guess we move on to report writing in closed session. Do we need a motion to move to closed session? We just move?

*The committee continued in closed session at 1305.*





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Second Intersession, 37<sup>th</sup> Parliament

## Assemblée législative de l'Ontario

Deuxième intersession, 37<sup>e</sup> législature

# Official Report of Debates (Hansard)

Thursday 18 April 2002

# Journal des débats (Hansard)

Jeudi 18 avril 2002

**Select committee on  
alternative fuel sources**

**Comité spécial des sources  
de carburants de remplacement**



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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Thursday 18 April 2002

Jeudi 18 avril 2002

*The committee met at 1005 in committee room 1.*

## REPORTS ON CONFERENCES

**The Chair (Mr Doug Galt):** I call the select committee to order. Our first order of business is the report of Mr Hastings.

**Mr John Hastings (Etobicoke North):** I'd like to submit my report entitled Alternative Energy Supply: Are We Losing the Renewables Race? It's based on a symposium I attended last November, 2001, to early December, at the International Solar Energy Society in Adelaide, Australia, and that is essentially what the report is based on. In addition, I met with a number of academics at the university-community college level there and with a number of industry players in solar and wind energy. As a consequence, I submit this report for the committee.

I would also like to move a motion to have this committee approve my expenses covering the symposium beyond December 4, 2001, for the multi-level government meetings and academic briefings which I attended in the following two weeks, for which the material has already been submitted to your office, Mr Chairman. In addition, I submitted this report to your office plus all the other attending material, which probably compares with Dr Bountrogiani's or Mr Gilchrist's.

**The Chair:** I think we should deal with the motion, if you're putting a motion on the table at this point in time.

**Mr Hastings:** Yes. I have.

**The Chair:** It was rather long. Do you want to make it precise?

**Mr Hastings:** I move that the cost of attending the multi-level government meetings and academic briefings from December 4 to about December 16, while I was attending the International Solar Energy Society symposium in Australia, be covered.

**The Chair:** Do we need a seconder?

**Clerk of the Committee (Ms Tonia Grannum):** No.

**The Chair:** Up to December 4 has already been approved by the committee?

**Mr Hastings:** Yes. You approved it, and I got an advance on it.

**The Chair:** Comments, discussion? Those in favour? Those opposed? I declare that motion carried.

Continue with your report.

**Mr Hastings:** I discovered a number of factors in the Australian setting. One factor is that the Commonwealth government in Australia is playing a very activist role in the whole area of renewable energy, particularly with regard to the Australian energy efficiency act that was passed in 2000. That piece of legislation set out for the next number of years what the alternative energy policy regime ought to be and is in Australia.

For example, they have targeted that 9,500 megawatts of power must be developed from alternative energy sources by 2010. That's a significant portion of the Australian total megawatts of power that they require. It is their way of trying to reduce greenhouse emissions as a major policy matter. It's rather ironic in the sense that while the Commonwealth government and the state governments over there are doing that, the Australian government has made its intent very clear that it will not be adopting or ratifying the Kyoto agreement. It's very similar to the American policy position on this where they're going to try to create a parallel policy response on reduction of CO<sub>2</sub>.

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What I found in Australia, in terms of renewable energy with particular emphasis on solar, is that they have developed a very sophisticated educational infrastructure. For example, they now have at one of their universities, Murdoch University in Perth, an on-line, Web-based component for education, a bachelor's and master's degree in civil engineering with a renewables component in their program.

They also have a similar education arrangement for accreditation of people who are installing photovoltaics on roofs, whether they be industrial, commercial or residential. They started to create this kind of structure in the mid-90s. They also have a number of very viable companies in the solar energy area in production of photovoltaic panels—third-generation, where you get the energy component down as you try to utilize the advantages of the renewables from the sun.

If you recall, when we were in British Columbia one of the professors there posed a very insightful question: what is the energy ratio input that you're putting into the product versus the energy output, and are they relatively equal? That is one of the issues undergoing debate in Australia.

I'll make my last remark on this: we have a similar attitude here as to whether energy from waste or energy

from wood would be considered clean air in terms of renewable energy certificates in Australia. The Australian Green Party, along with the Australian Democrats, which holds the balance of power in the Australian Senate, have said that any kind of renewable energy that's solar, wind and certain biomass is OK, but when you start chopping down old-growth forest and even using sugar cane waste, there is some debate as to whether that constitutes a renewable. You're going to see a similar debate here in that area. I think it's more acceptable from industrial and sugar cane waste. I attended a facility there where they're turning a sugar cane refinery into using alternative energy, a very interesting and agriculture-based approach that we need to look at here in Canada.

In terms of the overall policy, they're way ahead of us. They have created renewable energy certificates which require, and this committee is looking at it, that electricity providers must provide some of their electricity from green energy. They have opened up their market at the wholesale level but not at the retail level, so you've got a mixture of competition versus public enterprise there. But they're on their way. The RECs have a monetary value in the marketplace and, as you'll see in my report, they have an Office of the Renewable Energy Regulator to make sure the market is working in a fairly orderly way. It's now been going for about 14 months. So they're still emerging, but they're way ahead of us in that regard.

I know that's a federal responsibility, but I would pose the question that maybe beyond the terms of reference of the committee, things we could include in an addendum as to what Ottawa needs to be doing in this area—I know it's somewhat beyond us, but it does have a direct linkage to our policy recommendations in terms of the advancement of renewables.

Thank you very much for your time, Mr Chairman.

**The Chair:** Thank you for a most interesting and enlightening presentation, and congratulations on this thorough report that you've put together for us.

If I can quickly comment, I was interested in your wood waste reference, that it was from an old forest and that that wood waste was not considered renewable, but if it was from a commercial, active lumbering forest it would be considered as renewable as sugar cane. It's interesting how they have addressed what's renewable and what isn't, the old-growth forest being separated out. I can follow that.

**Mr Hastings:** It's an ongoing debate. The upper chamber of those two parties, the Greens and the Australian Democrats, holds the balance of power to the Liberal-National coalition in the House of Representatives, and the Australian Labour Party, which seems to generally push for what you'd call wood waste from forests, trees and waste where you have lumbering. But there, they're saying, "Uh-uh," the Australian Greens and the Australian Democrats. Even the sugar cane waste they are reluctant to accept as energy from waste because it's not a clear renewable. You'll have that debate here, I think. We've seen it to some extent with biomass, when

we consider biomass a renewable, because you are using carbon inputs. What are you emitting at the other end? It's a very purist viewpoint of dealing with renewables.

**The Chair:** Thank you. Questions, comments? Hearing none, we'll move right along.

**Mr Hastings:** Thank you very much, Mr Chairman. I certainly appreciated the opportunity to learn about a world that's quite a way from us, but in many regards we need to look at a connection, even though it's a Commonwealth country. There are a lot of things the Australians are doing in a number of areas that we could probably adapt to our own North American circumstances.

**The Chair:** Having seen these three reports that have come forward—and also, I believe Mr Parsons had a report earlier—I just can't help but think of what we have gained from the investment. It's too bad Richard Brennan couldn't be present to observe and see a copy of these reports. It's awfully easy to go off in the press and talk about people travelling, but they're not around to see what we have gained in benefit, information and knowledge because of people travelling. It's just a shame.

**Mr Ernie Parsons (Prince Edward-Hastings):** I was in Boston for a conference and I faxed some pages to Tonia. I'm wondering if I could just briefly share some of the thoughts with the committee.

**The Chair:** Sure. I was forgetting about your recent trip. I was thinking previously of the other one to Ottawa. But if you'd like to make some comments on that, by all means.

**Mr Parsons:** Yes. It was a northeastern energy group in the US that did it and they were focused primarily on buildings. There were a number of things I found very interesting. The first was a rather minor point but—part of alternative fuels, we believed in the committee, was the conservation of energy. They noted, though, that as we are making homes more energy-efficient, we're also making them larger. Since 1985, homes have increased in size by about 25%. Whereas we have achieved savings in the 15% range on energy consumption, the homes are 25% larger, so there is a net gain in energy even though the homes are more efficient. That hadn't struck me before.

A lot of the conference dealt with green schools, the concept of reducing energy costs for schools. Certainly one of their primary recommendations was some simple things such as replacing lighting. They're saying the energy-efficient lighting, if you factor just the savings to a school district, as they call them down there, the payback is too long on putting in the lower-energy-consuming lights. But if you consider the implications of less generation needed and the offsetting of producing generating plants, there can be a payback in four to five years, but it requires the state to input some money into the incentive to go to the cheaper fluorescent lighting. I believe, if I'm recalling rightly, we had a presentation on that during our consultation.

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But what I found the most interesting was that they said the greatest inefficiency in schools is heating empty



rooms. Older schools, by and large, have a thermostat for the building. They have found a great payback on the approach of a liquid that circulates through the building, with an individual heat pump in each classroom—not extracting energy from the outside air, but either extracting energy from this fluid medium or putting energy into the fluid medium. Literally, you will have a classroom in a school on the south side on a day like today that requires air conditioning, so it is drawing energy out of that classroom and putting it in. On the north side of the building, perhaps in the shade, it's requiring heat. Rather than consuming an external source of heat, you transfer the energy from one classroom to another.

A classroom with 30 students in it generates a lot of energy on its own and it becomes quite warm. So they said that your greatest potential for savings lay in individual heating and air conditioning for each room, maximized with schools that have experimented with groundwater as a supply of energy. The medium is circulated down through the groundwater and back up, with some supplementary heat required. But they felt that was the greatest potential, based on their initial cases with it.

Massachusetts has taken a stance on alternative fuels by saying development, whether it be solar cells or any other thing, requires some money. They're focusing on the production of electricity, saying it will cost some money to get these alternative products on line. People who use electricity should pay for these alternative services. So they've levied a charge of 50 cents per household per month and established what they call an energy trust. They have at this stage, I think, some \$170 million in this trust fund. So companies within Massachusetts—they must be within Massachusetts—that wish to produce photovoltaic cells can get a start-up grant or supplementary grant. It is partially looking at producing alternative sources of energy, but it is in some ways related to what John just presented. They don't want to lose the race, and so they will foster the development within Massachusetts with this seed money.

Indications were that it was extremely well received by the public. Fifty cents was seen as a trivial amount. They're now at the point where they're dispensing \$50 million to \$60 million a year to companies wishing to explore—and they're putting grants out for biomass and virtually everything. I found that interesting because it not only helped alternative energy, but it helped industrial growth within that state. It intrigued me. I think it is something we could consider, to encourage homebuilt industry.

**The Chair:** I think your comments on the classroom schools are intriguing. I don't know what it costs for a mini heat pump per room, but it's an interesting philosophy. We certainly see these large buildings, especially older ones, where the south side is just steaming hot and the north side, as you were saying, needs heat. Intriguing.

**Mr Parsons:** Yes, I thought it was a great concept.

**The Chair:** Other comments, questions?

**Mr Hastings:** Mr Parsons, did you have a chance to visit any schools that had made any of these adjustments?

**Mr Parsons:** No, I did not.

**Mr Hastings:** Did they have any models at the conference that would show how they would carry out these energy-saving devices?

**Mr Parsons:** I'm a little bit embarrassed to say this, but when I came back and shared with people in my community, they pointed out that Picton hospital has that system.

**The Chair:** How interesting.

**Mr Parsons:** It's had it for about four years. They have a heat pump in every room, a unit about the size of a window air conditioner located in each room, and it taps into and out of this liquid.

**The Chair:** What we're hearing, then, is not uncommon. Well, maybe it—

**Mr Parsons:** It is uncommon.

**The Chair:** But it's present.

**Mr Parsons:** The technology exists for it. It's not widely known; it's not widely used in Ontario.

**Mr Hastings:** Would it be possible to get the architectural plans from the Picton hospital board—

**Mr Parsons:** I would think so.

**Mr Hastings:** —or the architect that did the design of the rooms that involved those heat pumps, that we could maybe attach to our material for the committee report?

**Mr Parsons:** I will pursue that, yes.

**Mr Hastings:** My second question involves the state energy development fund, I guess, to help companies manufacture products or services.

**Mr Parsons:** The energy trust, yes.

**Mr Hastings:** How is that administered? By their industry department or whatever their equivalent is?

**Mr Parsons:** Yes. Now, they in a sense spun it off. They appointed a board.

**Mr Hastings:** OK, a separate group.

**Mr Parsons:** A separate group that receives applications.

**Mr Hastings:** What is that: 50 cents per household per year or per month?

**Mr Parsons:** Per month. It's 50 cents per household per month.

**Mr Hastings:** Do they levy a similar charge on commercial buildings?

**Mr Parsons:** Yes. The industrial one is larger, but it is still less than \$2 a month. They didn't go for a percentage; it's just a flat 50 cents for a house and a dollar something for—

**Mr Hastings:** Passed by the state legislature?

**Mr Parsons:** Yes. The state legislature put it in place.

**Mr Steve Gilchrist (Scarborough East):** I'm quite impressed at the payback they've already achieved with such an insignificant amount of money assessed to each household. I would suggest to the committee that perhaps we should add a similar recommendation at a similar price tag for a similar purpose. I'm going on the assumption that their lawyers have judged this to be something that is immune to any challenge under the WTO or NAFTA. I was not aware that you still could create those

sorts of subsidies for domestic or indigenous manufacturing, but if that's the case—

**Mr Parsons:** This is in its third year.

**Mr Gilchrist:** If that's the case, then I think—and it was one of the questions I left for Mr Richmond, just yesterday, in fairness to him: whether or not Ontario has the ability to target made-in-Ontario manufacturing and to give any kind of incentives or have an institutional bias in favour of products that are manufactured here, or at least assembled here. Subject to that review, I would strongly suggest that we have a section—in fact, we don't really have a section in here that's targeted to economic development. It's spoken to in a myriad of different ways, but we don't expressly come out and have a heading in the draft report in front of us that speaks to the economic benefits of encouraging and instituting alternative fuel policies. So at whatever point you deem appropriate, Mr Chair, as we go through what's left of the report and the recommendations, I would like to see us add an identical provision.

**Mr Parsons:** Yes. I was impressed. It's not preferential buying; it is funding to develop new technologies.

**Mr Gilchrist:** But I think, Mr Parsons, if that survives, if you can create a bias for the making, presumably you can create a bias for the buying. In any event, even half that loaf would be—in fact, it would be the half with the greatest employment benefits and therefore, in all likelihood, the highest value-added benefits for the province. So I appreciate that tidbit and I hope we can incorporate that.

**Mr Hastings:** To supplement what Mr Gilchrist is saying, I think my report touches on economic development potential, and if our terms of reference allow it, we should have a specific section dealing with economic stimulus for the renewables industry.

In addition, it seems to me, talking to the people in Australia, that we need—I don't see it in our terms of reference, but I don't know if we can be creative here and stretch them. You need some kind of an educational infrastructure for the development of a sustainable renewables industry, not just the maintenance and installation of PVs, as an example, or the heat pumps in the classrooms, but you need the supports: the marketing, the administration, the servicing, the sales of those products. And you need to have components in educational programs or in a program at a given institution for the industry. It has to be worked out with them in a way.

We do have industry here in Ontario, companies already in these fields, but they're just not grouped as an

association. Conserva is one of them, up in North York; they put those black sheets of metal on the sides of buildings. Actually, you can see them in Windsor, Ontario, on public housing. Those little companies create some jobs. That's what I got out of the Australian experience, significantly, the development of those supports and the growth as they go into the 21st century.

I don't know if Mr Richmond can accommodate us in that area, but I would like to see a recommendation dealing with a specific educational program—leave it up to the players as to how they develop it—in an engineering faculty or in an economics department and in the trades: electricity, because you've got the net metering issue to be dealt with; it's not that complicated, but some people do need some upgrading. We don't want that to become a barrier. "Well, that can't be done." You know what we heard from our people at SMUD. So I would like to see a specific educational infrastructure recommendation linked to the economic development stuff in the report, if it's conceivable.

**The Chair:** Other comments or questions? OK. My last comment is that you might want to share your experience of your trip, education-wise with schools, with the ministry and forward it to them.

**Mr Parsons:** Do they listen?

**The Chair:** Sorry?

**Mr Parsons:** Nothing. That was a smart remark.

**The Chair:** I know in the democratic process it is frustrating at times when you forward good information and they don't see fit to use it. The ministry may be very aware of it, but it may be something we should be encouraging in school boards; or maybe the corollary to that would be to ask them to forward it to school boards for thinking as a retrofit and building new schools.

**Mr Parsons:** Certainly.

**Mr Hastings:** It seems to me, on Mr Gilchrist's point about whether Ontario could have an incentive program like Massachusetts, the question is—I don't know if you posed it—why is it that the EU and its respective member states are able to have programs and incentives that support both market-driven and some government pull-push in their respective renewables industry, and is that not subject to a WTO or EU—the old EEC—challenge as a subsidy?

**The Chair:** Thank you.

Let's move on to our report, which means we move in camera. Hansard will recognize the fact that we are now moving in camera.

*The committee continued in closed session at 1033.*





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Mr Ernie Parsons (Prince Edward-Hastings L)

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## Legislative Assembly of Ontario

Second Intersession, 37<sup>th</sup> Parliament

## Assemblée législative de l'Ontario

Deuxième intersession, 37<sup>e</sup> législature

# Official Report of Debates (Hansard)

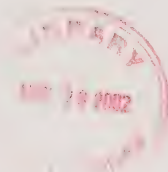
Wednesday 15 May 2002

# Journal des débats (Hansard)

Mercredi 15 mai 2002

Select committee on  
alternative fuel sources

Comité spécial des sources  
de carburants de remplacement



Chair: Doug Galt  
Clerk: Tonia Grannum

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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Wednesday 15 May 2002

Mercredi 15 mai 2002

*The committee met at 1237 in room 228, following a closed session.*

## COMMITTEE BUSINESS

**The Chair (Mr Doug Galt):** The first question I have is, shall the final report be adopted?

**Mr Steve Gilchrist (Scarborough East):** As amended.

**The Chair:** The amendments have already been happening and there's nothing that was there to start with. Of course, the subcommittee will be making the final changes and that will be tomorrow afternoon.

**Mr Gilchrist:** Do we need a motion to that effect?

**Mr James J. Bradley (St Catharines):** As amended and ultimately approved.

**Mr Gilchrist:** Yes. I would be happy to move that the subcommittee have the final authority tomorrow to amend any last-minute changes and, on behalf of the committee, approve the final draft of the report.

**The Chair:** Those in favour? Motion carried.

Shall the report be translated and printed? Agreed.

Shall I present the report to the House and move the adoption of its recommendations? Agreed.

Pursuant to standing order 32(d), shall the committee request that the government table a comprehensive response to this report?

**Ms Marilyn Churley (Toronto-Danforth):** What?

**The Chair:** I shall repeat it. Pursuant to standing order 32(d), shall the committee request that the government table a comprehensive response to this report? Agreed.

I think we need a time frame.

**Ms Churley:** Do we have a deadline for this?

**Mr Gilchrist:** It's in the standing orders.

**The Chair:** OK. Just for the information of committee members, all presenters will automatically receive a hard copy of the report. Of course it will be on the Web site.

Have we agreed on a cover?

**Mr Bradley:** We like the one with the leaves on it.

**Mr Gilchrist:** We like photomontage, that being a bit more descriptive and evoking the range of technologies.

**Ms Churley:** I want to know who put the little picture of the smokestacks there, which was covered up.

**Clerk of the Committee (Ms Tonia Grannum):** That was Mr Gilchrist's suggestion, showing the progression.

**Ms Churley:** Oh, I get it. OK.

**Clerk of the Committee:** It doesn't really fit, so we're going to replace it.

**The Chair:** With a cornfield and with a solar panel.

**Mr Bradley:** Mr Parsons persuaded me that the one with the leaves on the front was the best, by far.

**Mr Ernie Parsons (Prince Edward-Hastings):** As a maple syrup producer, I like that one. Actually, I think the other cover is more informative in the broad sense of the committee.

**Mr Jerry Richmond:** Let me just say that I'd like to thank everyone for the work over the last 10 months. We've certainly learned a lot. I thank the indulgence and co-operation of all the members. It's been a pleasurable experience. So thank you all.

**Mr Gilchrist:** Let me put on the record, I'm sure on behalf of all of my colleagues on both sides of the House, how impressed we've been with the work done by Jerry and Jennifer and everyone else in your department, and of course the work Tonia has done in terms of bringing us to the point we're at today with what will hopefully be groundbreaking recommendations, a world-class report and a bold challenge to all of our colleagues, to industry and to the general public on how we move from the status quo to the cleanest air and the most aggressive clean technologies agenda anywhere in the world.

I'm confident that we've done the horse-trading and the deliberating necessary to prepare such a report. Now it moves from our capable hands into those of the wider audience that will be receiving the report in a couple of weeks. I'm sure the all-party support the committee has received in this room bodes well for its adoption and translation into law. I think we can be very proud of the fact that while it won't have benefits in this election cycle or perhaps even the next one, 20 or 50 years from now the work that we've done in this committee will bear significant fruit here in the province and, hopefully, maybe to some extent shame other jurisdictions to follow our lead.

**The Chair:** Would you like to make a motion of congratulations to staff?

**Mr Gilchrist:** Absolutely. I think it would be quite appropriate to move that.

**The Chair:** Do we have a seconder over here?

**Ms Churley:** I second it.

**The Chair:** All in favour?

**Mr Bert Johnson (Perth-Middlesex):** I'd like to make it unanimous.

**The Chair:** Me too. I'd like to make some comments. Ms Churley?

**Ms Churley:** Yes. First of all, as the only representative from the New Democratic caucus in this committee, I want to thank the committee for its indulgence from time to time. It has been at times difficult to be here all of the time and to go on all of the trips that took place—I shouldn't use the word "trip," should I?—the explorations that the committee went on. I want it on the record that I regret that I wasn't able to accompany you on those trips, because I think they were important.

There was a news report that suggested that it might not be so. I certainly made comments that perhaps the Legislative Assembly committee travelling was not necessary, and I still believe that, but I made a point of clarifying to the reporter that I thought the work of this committee was very important and that generally the research travelling that happened was important work. I wanted that on the record.

Finally, I'd like to thank the committee for its indulgence in the areas particularly around coal-fired generation and energy from waste. I want it on the record that I have expressed concern and problems with those two areas in respect to this committee, and I want to thank all of the members of the committee for their indulgence and for working with me to accommodate those concerns and find wording that we can all live with.

Thanks to everybody. A very important committee and very important work. It's been a pleasure to serve on this committee.

**Mr Bradley:** The first comment I would make in my brief remarks would be my belief in the select committee process. I think it's far superior to a standing committee. It has a special focus. I have detected throughout this process a checking of the partisan hats at the door. We've had our fun in some of our exchanges, but by and large we've been able to leave our partisan hats outside of the committee door, whether it's when we're doing investigative work outside of the committee chamber here or in the committee itself. I think that's a great advantage in terms of policy recommendations—I can't say policy-making.

Second, I appreciate all members of the committee accommodating the angst of one another. I had many concerns about some of the initial recommendations, some initial commentary. That was overcome through compromise, through discussion and through the genius of the staff, who were able to translate into words on paper that which we were trying to suggest as members of the committee.

I think it's been a useful process. My hope would be that all governments who have the recommendations at hand will give them serious consideration and implement them. I say that because this is going to be over a number of years. Second—Doug, as Chair you'll appreciate this—people in other jurisdictions are going to benefit immensely from the work this committee has done. I think there will be requests from other provinces and other jurisdictions for this report and we have an opportunity to set a trend in many areas.

I was pleased to be able to be part of this committee. We all have a thousand and one commitments as MPPs to try to fulfill while we're doing this work, and it's through the auspices of the legislative research that we're able to bring it all together. Some day I would be prepared to recommend an increase in the budget of legislative research, but probably not for this committee today.

**The Chair:** Thanks very much to each of the parties making your comments. As Chair, a very special thank you to staff. This has been very technical, with areas difficult to understand for a lot of the committee members who have a real interest in it. For researchers heading off into an area that's not their area of specialty, they've got an understanding on it, pulled it together, packaged it for us, repackaged it and repackaged it. To the committee members, thank you for your co-operation. I'm thrilled that I didn't have to call a vote on any of the recommendations, that we were able to work out our differences and arrive at a consensus. I believe it's going to give an awful lot of power to the report, the fact that we have a unanimously agreed-to report. With the give and take in this room—we've heard all kinds of comments about what the report may or may not do. I have my fingers crossed and hope that it will do quite a bit for the environment in Ontario.

Thanks to all the committee members for your willingness to give and take. I know I was frustrated on a few occasions with attendance and people not being with us. All of you had your reasons at the time, but certainly the end result has been excellent. I'm thrilled with the fact that we have a unanimously agreed-to report that we arrived at a consensus on.

**Mr John Hastings (Etobicoke North):** May I briefly add my commentary as well, Mr Chairman? I'd like to congratulate you and the staff for the excellent job that has been conducted here. I'd second Mr Bradley's remarks about the usefulness and applicability of the select committee arrangement for special subjects. I believe this particular subject matter of alternative fuels will be a legislative defining moment in the life of this government and successive governments. It's going to have a tremendous impact on the future lives of people in Ontario. I'm very happy to have been a small part of producing such a useful and learning exercise.

**The Chair:** Thanks very much. As I call for adjournment, just a comment that this select committee, by the way, as some members may not be aware, has been a long-time dream of Mr Gilchrist. He has lobbied a long time, a considerable time, I believe, to have such a committee look at alternate fuels. To Mr Gilchrist, thank you for your concerns in this area. I guess as a committee member I'd centre out the efforts you've put in, and the recommendations you've brought forward have been exemplary. Thank you for your genuine concern about our environment and about our fuels.

**Mr Gilchrist:** Thank you, Chair.

**The Chair:** With that, committee adjourned.

*The committee adjourned at 1248.*











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of Ontario**

Second Intercession, 37<sup>th</sup> Parliament

**Assemblée législative  
de l'Ontario**

Deuxième intersession, 37<sup>e</sup> législature

**Official Report  
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**Monday 27 May 2002**

**Journal  
des débats  
(Hansard)**

**Lundi 27 mai 2002**

**Select committee on  
alternative fuel sources**

**Comité spécial des sources  
de carburants de remplacement**



Chair: Doug Galt  
Clerk: Tonia Grannum

Président : Doug Galt  
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## LEGISLATIVE ASSEMBLY OF ONTARIO

## ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON  
ALTERNATIVE FUEL SOURCESCOMITÉ SPÉCIAL DES SOURCES  
DE CARBURANTS DE REMPLACEMENT

Monday 27 May 2002

Lundi 27 mai 2002

*The committee met at 1134 in committee room 1.*

## COMMITTEE BUSINESS

**The Chair (Mr Doug Galt):** I now call the select committee on alternative fuel sources to order. The first and only item on the agenda is the tabling of the report. I thought this might be quite simple, in my naïveté, and thought that we'd just poll the committee and that they would be in favour of putting in an English-only, and that the French would come as soon as we could get it translated, when in fact we e-mailed around and the results were pretty well 50-50.

There seem to be developing pressures from both sides as to what to do, so rather than have the monkey only on the Chair's back, I decided to call a full committee meeting to discuss, do you want this tabled as English only, with a French version to follow, and at that time send out all the glossy copies, or would you prefer to ask the House leaders to put a motion in front of the House to extend our deadline of May 31? I'm hoping for the direction of this committee.

I believe it's Dr Bountrogianni and then Ms Churley and Mr Bradley.

**Mrs Marie Bountrogianni (Hamilton Mountain):** I have a question: how much later would the French translation be?

**Clerk of the Committee (Ms Tonia Grannum):** We've put a lot of pressure on them, so I think if we ask for a two-week extension we would be very safe.

**The Chair:** Realistically, what can they do?

**Clerk of the Committee:** They've now said the end of next week, the beginning of the following, but then we also have to get it out to print. Printing is not the issue; it was the translation that was the issue.

**Ms Marilyn Churley (Toronto-Danforth):** I had that question but also the process by which it's being translated. It's being done in-house, is it?

**Clerk of the Committee:** No. The Legislative Assembly has a contract with a translation company, so we send all our translation to this company. They had a problem meeting our—

**Ms Churley:** I guess my question would be if, under those circumstances, since we didn't nearly complete our budget, if there's a way that we can get somebody else, another company—

**Clerk of the Committee:** We tried two other companies and we said we would pay a premium. We tried everything we could to get this.

**Ms Churley:** So we're talking about a two-week delay.

**Clerk of the Committee:** Yes. That would cover it, I'm sure.

**Ms Churley:** My suggestion would be—and, if necessary, I'll make a motion on this—that we ask the government House leaders to bring forward a motion delaying the filing of the report until such time as we have a French translation.

**The Chair:** I don't think there's any question—as you're referring, Ms Churley, it's maybe high time we looked at those that we're hiring, contracting with, about French translation. This committee worked very, very hard to meet the deadline. We were told by mid-May, to give them two weeks to translate. We were literally finished on the 15th, tied it up on the 16th, and research had those few changes by the morning of the 17th, so they had a full two weeks and they failed to meet that deadline. We met the deadline; they're not.

**Ms Churley:** We worked very hard to meet that deadline, this committee and research, so that's very disappointing. But I think it sets a very bad precedent. I understand the urgency and the concern we have as a committee, because we did work so hard to reach the deadline. It was a matter of pride that we were able to meet that deadline. I think it will be understandable if a motion is put forward clearly outlining that it is to get the French translation completed. I just think it sets a very bad precedent for this committee to allow a report to go forward in English only, when on many occasions we argue that no government reports should be tabled without the French translation. So we just can't do it here.

**Mr James J. Bradley (St Catharines):** When the sheet was sent around asking our preference, I indicated that in my view we should follow the usual procedure, which was to have it in French and English at the same time. I certainly concur and I think all members of the committee would recognize we worked very hard to meet the specific deadline set. Nevertheless, I don't think the world will end if we don't meet that deadline. I think there's a recognition that it's coming, that the work is completed, in effect. A two-week delay—well, that's an annoyance to those of us on the committee who've worked hard and so on. I think it is good to do that

because when you start setting new precedents as to how you're going to release reports without the French translation, then that sets a precedent for something else happening. I don't think that the committee report will be any less important two weeks from now than it is right now, so I would certainly be in favour of asking the House leaders to delay it for two weeks.

1140

**Mr John O'Toole (Durham):** I think it is important to recognize what everyone has said: the hard work that committee and staff have done because of the ongoing kind of assurance that we had a unanimous report. I think that may have been important to note.

I just think if it was introduced, it would allow, in the context of the broader debate on electricity, for this to be a reference point in question period. In fact, there may be those who say it doesn't go far enough, it goes too far, whatever. I think it would be nice to engender that debate in respect to the work that this all-party committee has done.

I'd just like some reassurance from staff that we could set a drop-dead date for introduction, because we have no assurance of the translation process. I'd like to make sure that we don't miss the opportunity and this committee doesn't have to reconvene; that if we come out of this waiting for a period of time, which I'll acquiesce to staff to determine, the report would then be introduced, giving full respect to the initial intent of the committee to have it in the two languages. Could I have some response from staff that if the drop-dead date was two weeks from today, then we would go ahead, if that wouldn't be a middle ground for the committee to reach some agreement on? Because otherwise we have no assurance now that we won't be back here again. If it's introduced in the whole potential of the House not being in session, it becomes kind of a moot point.

**Ms Churley:** We're going to be out in two weeks?

**Mr O'Toole:** No, no, but I'm saying if it isn't in by the time the House is recessed, what are we going to do then? Meet again to talk about the same issue, or do we say, "This is the date," and we'd have to go forward?

I'd like to see something on this report mentioned in the budget. The work that's been done and the suggestions that have been made on tax policy and other areas would be important. I'm trying to engender some response. I would like to see two weeks from today being the drop-dead date. In that term, I'd be respectful of the unanimous intent of this committee to have it in the official languages, but we don't want to miss the budget and we don't want to miss the importance of this debate being a reference point. So could I have some response to that?

**The Chair:** Mr O'Toole, are you referring to two weeks from now or two weeks' extension?

**Mr O'Toole:** Two weeks from now.

**The Chair:** June 10?

**Mr O'Toole:** Yes. I think that's roughly the budget week.

**The Chair:** I think an interesting point has been brought up, the fact that we have so many items in here that could be helpful for the Minister of Finance, meanwhile all of this is confidential information and we're unable to take good advantage of a budget that is coming up. That is one logical reason why we should move ahead, but I am at the committee's direction. Anyone else?

**Mrs Bountrogianni:** As long as the clerk thinks it's reasonable, I don't mind supporting Mr O'Toole's recommendation, as long as he drops the drop-dead clause. Just make it, "This the deadline"—I think that's good; deadlines are important—as long as it's a reasonable deadline.

**Ms Churley:** I can't support the motion as it's been put because it implies that if the French translation is not complete at that date, we would go ahead and table it without the translation. What I understand we have is a deadline from the company that's doing the translation. What is that deadline again?

**Clerk of the Committee:** It's May 31 or June 3. And then I can do the printing overnight.

**Ms Churley:** I can't support the motion as it's worded now, that we table the report whether or not the French translation is complete. I would support a motion that the English and French versions of the report be tabled in the Legislature no later than June 3, but I would want to say in both—

**Clerk of the Committee:** You're saying tabling by June 3? We could table by June 6. So we could table on the Tuesday, Wednesday or Thursday.

**Ms Churley:** So no later than June 6. But I would change the motion to say that the English and French versions of the report be tabled in the Legislature by no later than June 6 and make it very clear to the translating service that we have to have it in to you no later than June 3.

**Mr Bradley:** Whether you agree or not with the principle, if you follow the principle of tabling only when you have French and English copies, then whether you're doing it now or two weeks from now, you violate it. I think there's a very good chance that we're going to have it ready. Certainly, from the indication the clerk has given, it's going to be ready no later than June 3. It can be tabled June 6.

Anybody who believes that the government doesn't know what's in this report is living in dreamland because the government monitored the hearings we had. We all know governments do that. That's their job, to monitor the hearings and the deliberations. They may not be privy to the final contents of the report, but certainly they're privy to the Hansards of this. Suggestions have been made and so on. I know the government, if it's going to put anything in its budget, is probably going to put it in the budget whether this report is out or not. It would be nice for the government to give the appearance of responding quickly to this report—I understand that from a political point of view—but I'm sure the government has a pretty good idea what the final report's going to



say. If they don't, I would be the most surprised person around this table.

**Mr Steve Gilchrist (Scarborough East):** That would be consistent with your reaction many days in this committee—quite surprised by the government.

I would support a motion that requires the tabling by June 6, but I am extremely concerned that we've got two conflicting principles here. One of them is an order of the House. I would remind the members opposite that if we defeat this motion, the Chair must support the status quo, and the status quo is that we've already voted to table on May 28. You don't have much of a bargaining position, first off.

Second, I think it's deplorable that having met the timetable we're now subject to the vagaries of someone else not showing due regard for the deadlines that we were told were appropriate. I am concerned. Speaking for myself, I can assure the member opposite that I haven't spoken to, nor have I given any of the information to the Minister of Finance or anyone associated with her. It would be a shame if we missed the opportunity to have a lot of our recommendations included in this year's budget, because the member will recall that many of our timelines are extremely tight and if they are to be met, they have to be announced soon.

I will support June 6, but I want it clearly on the record that if that is the motion on the floor right now, we're recognizing the failure to meet the deadline for which the committee had been operating, that the original motion to table on May 28 by this committee stands. So I would ask the—

**Mr Bradley:** Unless there's another motion.

**Mr Gilchrist:** Unless there's another motion, in which case I can assure you that I will be voting against a further extension. I think we have ample precedents where reports were tabled in one language with the alternative to follow. It may be controversial, but in this circumstance we're faced with a genuine loss for the people in this province if we're following some other procedural nicety because it contradicts a procedural nicety, namely, the order of the House that we report by May 30. I want it clearly on the record that I will go for an extension to June 6, but I will not personally support any extension beyond that because I believe that would compromise the ability of the Minister of Finance to include any of our recommendations in her budget this year.

**Mr Bradley:** I believe the assurance. We've had the assurance that no later than June 3 is when we're going to get the report. On that basis, I think June 6 is reasonable because what the clerk has indicated to us is that they have said they will have it ready no later than June 3. That assurance is there. They probably won't see any Legislature business if they don't meet that deadline, I would think. So June 6 is all right with me because I think we'll be ready with it.

**Mr Ernie Parsons (Prince Edward-Hastings):** I'm comfortable with June 6, which is past the beginning. I want as much as anyone to see this tabled. There's some very good material in there that I think would truly

benefit the province. But my concern, if it's not ready on June 3rd for the 6th, is that we've got two different aspects. We've got the internal aspect of a government committee operating, and there's problems on that. But if I look at the other picture, which is the rights of citizens in Ontario, the francophone community has equal rights for services. It's not a privilege; it's not a gift; they have a right to it. I don't believe that if we give them a right, we're really giving them a right if we say, "You can get it two weeks later." "Separate but equal" has been shown to be a fallacy. So I feel strongly now that we need to table both languages at the same time. I believe it's a fundamental right for the citizens.

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**Ms Churley:** I would like to reiterate Mr Parsons's remarks that there's a reason why we have this procedure in the Legislature, that is, to table in both official languages. We have had occasions where government has tabled reports not translated, or attempted to. There were usually very good reasons why governments liked to table a report at a particular time, but we have argued ferociously in opposition to that. I would do so again here.

I would like to make a motion. I think there's a little bit of a difference of opinion here, because my motion says very clearly that the report be tabled in both official languages, in both French and English, on June 6 in the House, which of course makes very clear that the report would have to be tabled in both languages. I stand by that motion. I have made such a motion, and perhaps others would like to speak directly to it, but that is my motion: that the report be tabled on June 6 in the Legislature in both French and English.

**The Chair:** I wasn't accepting any particular motion. I was just trying to get the lay of the land here in discussion. Once we find a motion that will go through, then I'll accept an official motion. I think basically everybody's talking the same line here.

**Mr John Hastings (Etobicoke North):** I have two questions first. One, who is doing the translation? Is it in-house, is it out-sourced, or is it a combination?

**Clerk of the Committee:** The Legislative Assembly has a contract with a company called Société Gamma, and they're responsible for it.

**Mr Hastings:** What does the contract provide for when there's a so-called unavoidable delay?

**Clerk of the Committee:** I don't have the details of the contract. I'd have to talk to our purchasing department to find out the details of the contract. I don't know that.

**Mr Hastings:** Before we leave here today, if you're going to have a motion that moves this date, I'd like to know to what extent the proposer is interested in ensuring that there is a specific reason, not a vague generalization, as to the delay in the date.

**Clerk of the Committee:** You want to know the reason they gave us for not having the—

**Mr Hastings:** Yes. What's the reason?

**Clerk of the Committee:** They didn't have their staff available. They normally have three people translate our reports. Two of them were unavailable, so they only had one person translating. After going back and forth with them, I said, "This is unacceptable. You are under contract with us." They were able to find an additional person to translate, which pushed back our deadline. Initially they said June 15; I said, "That's not good enough."

**Mr Hastings:** I would like to know whether Ms Churley is interested in stating what the explicit reason is for the unintended delay, however that's phrased, dealing with staff shortages at the company that the Legislative Assembly contracted with. Otherwise you end up with a motion made by the House leader that just says "unavoidable delays." To me, whatever the reason is, where is the follow-up consequence therefrom? It seems to me that on a committee report as significant as this—it could be any other report—there ought to be some kind of financial consequence to the company for this delay and how that's invoked within the contract that this company made with Assembly purchasing. There's no doubt in my mind that we need to have an equal facility recognizing the importance of French as an official facility in this province and it should come out the same as it would with English. But I'm very dissatisfied that we're going to sort of gloss it over and there isn't any financial consequence and, second, there's no official statement within the motion made as to—unless Ms Churley will consider stating whatever the specific reason is.

**Mr Gilchrist:** Let me just clarify. Ms Churley actually now has two motions on the floor. The first one she read into the record was that she wanted the government House leader to introduce a motion to extend the deadline for the tabling of the report. That is the one I said I would support. If you want to add "in both official languages," that's fine. I will not vote to amend the original recommendation by the committee. I will be prepared to vote for something that says, "The members of the committee unanimously request the House leaders"—plural—"to table a motion to extend the deadline of the tabling of the report by the select committee on alternative fuel sources, in both official languages, by no later than June 6, 2002."

**The Chair:** Is that something that kind of comfortable that we can put on the table officially?

**Ms Churley:** Yes.

**The Chair:** Let's get on with it then.

**Ms Churley:** Wait a minute. Just in response, I did move a motion. Actually that wasn't a motion the first time. I was suggesting it could be put into a motion.

**Mr Gilchrist:** Then there now is a motion on the floor.

**Ms Churley:** There now is a motion on the floor and I just wanted to respond to Mr Hastings's comments. I have no problem with having something in the motion that suggests the delay has to do with the fact that the French translation was not available for the original deadline.

**Mr Gilchrist:** That's not necessary.

**Ms Churley:** If that is an issue for people—

**Mr Gilchrist:** Let's keep this as positive as possible and let's move on.

**Ms Churley:** I would agree—

**Mr Gilchrist:** We've all agreed we want to do this so let's do it.

**Ms Churley:** Steve, I was responding to one of your colleagues' questions, and if that is important to him, I'm just suggesting to him that I would be amenable to that.

**The Chair:** What I would suggest we do is get this reflected, whatever Mr Gilchrist has said, as a motion to make sure everybody understands and we put the reason in the letter: "This is the motion and this is the reason." Then the House leaders can deal with it as they see fit.

**Ms Churley:** OK.

**The Chair:** Can we have how the motion is worded just so that we have it technically correct?

**Mr Gilchrist:** The members of the select committee on alternative fuel sources unanimously petition the House leaders to present a motion to extend the deadline for tabling the report by the select committee, in both official languages, to no later than June 6, 2002.

**The Chair:** Is everybody comfortable with that? Any further discussion? Those in favour?

**Mr Hastings:** What's the reason?

**The Chair:** The reason will go in the letter.

**Mr Hastings:** Right in the motion as well?

**The Chair:** No, just in the letter.

All in favour? Motion carried. Adjourned.

*The committee adjourned at 1159.*





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